DOCUMENT RESUME

ED 434 287 CG 029 470

AUTHOR Tebb, Kathleen P.
TITLE The Effectiveness of Mentoring for Adolescent Mothers and Their Infants: A Comparative Study between Sister Friend and Cal Learn.
PUB DATE 1999-03-00
NOTE 103p.; Ph.D. Dissertation, University of California, Davis.
PUB TYPE Dissertations/Theses - Doctoral Dissertations (041)
EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Adolescents; Attendance; Behavior; Child Development; *Early Parenthood; Family Environment; *Infants; Low Income; *Mentors; *Mothers; Parent Child Relationship; Parent Education; Parenting Skills; Program Evaluation

ABSTRACT

This study evaluated Sister Friend, a mentoring program in Yolo County, California, serving low-income adolescent mothers and their infants. The primary objective was to determine if participating in the Sister Friend program improved the adolescent mother's parenting class attendance, the home environment, parenting behavior, and child development outcomes. This study employed a quasi-experimental design to evaluate the effectiveness of Sister Friend. It compared adolescent mothers participating in both the Sister Friend and Cal Learn programs with a similar group of mothers receiving only Cal Learn services. Data was collected upon entry into the Sister Friend Program and again 6 months later. The second aim of the study was to evaluate the implementation of the Sister Friend program. Interviews with adolescent mothers and their mentors examined how frequently adolescent mothers met with their mentors, the types of activities they were involved in, program support for the match, and the quality of their relationship. In spite of a small sample, this study found that adolescent mothers and their infants participating in the Sister Friend program had significantly better outcomes than those in the Cal Learn-only group. Recommendations are made for future research and an integrated service delivery system for adolescent mothers and their children. Appendix A provides copies of the assessment tools used in the study; Appendix B is the Infant and Toddler Immunization Schedule; Appendix C provides the HOME inter-observer reliability coefficients; and Appendix D provides examples of existing services for adolescent mothers and their infants in Yolo County. (Contains 5 tables and 75 references.) (MKA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 434 287

The Effectiveness of Mentoring for Adolescent Mothers and Their Infants: A Comparative Study Between Sister Friend and Cal Learn

By
Kathleen P. Tebb, Ph.D.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

K. Tebb

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

CG029470

BEST COPY AVAILABLE

The Effectiveness of Mentoring for Adolescent Mothers and Their Infants:

A Comparative Study Between Sister Friend and Cal Learn

By

Kathleen P. Tebb
B.S. (University of California, Davis) 1992

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY
in

Human Development
in the

OFFICE OF GRADUATE STUDIES
of the

UNIVERSITY OF CALIFORNIA, DAVIS

Approved:

Emmy Werner

Emmy Werner, Chair

Carol Rodning

Carol Rodning

Marc Braverman

Marc Braverman

Curt Acredolo

Curt Acredolo

Committee in Charge

1999

The Effectiveness of Mentoring for Adolescent Mothers and Their Infants: A Comparative Study Between Sister Friend and Cal Learn

Copyright by
Kathleen P. Tebb
1999

Acknowledgments

I am eternally grateful to all of the young mothers who welcomed me into their homes and shared their life experiences with me. You have taught me much about dignity and resilience. Thanks also to the volunteer Sister Friend mentors for their valuable contributions to this project and more importantly for the support they provide to the young mothers in their community.

My deepest thanks to my mentor and dissertation chair, Emmy Werner, who is my source of inspiration. Her contributions exceed what can be described in words. I am grateful for her steadfast support and critical review of each draft. She is a constant reminder that change is possible with compassion, perseverance and hope.

Many thanks to the countless contributions of my committee members: Curt Acredolo, Marc Braverman, Carol Rodning and Xiaojia Ge. They offered me their guidance and support throughout my graduate education both professionally and personally.

Thanks also to my dedicated volunteer research assistants Meaghan Paidhungat and Neetu Sabharwal.

Grateful acknowledgment is made to the following individuals for their permission and support in conducting this research:

Mary Jo Bryan and the staff at the Sister Friend Program;
The following individuals at the Yolo County Department of Public Health: Jo McBride, Mirna Epstein, and Kay Lehr
The following individuals at the Yolo County Department of Social Services, Cal Learn Division: Mike Noda, Judy Leman, Natalie Dillon, and the Cal Learn Case Managers
Individuals from the Yolo County Teen Parent Centers: Rachel Woody, Teen Outreach Worker, West Sacramento and Melinda Waring, Teen Parent Center Instructor, Woodland

I extend thanks to my husband for his unyielding support and to my family and friends for their constant encouragement.

Thanks also to those who helped me early on in my career: Giovanna Stark for helping me see early on the value of linking research with public policy and Larry Harper who believed in me even though I did not fit the mold.

Funding for this research was made possible through grants from the Jastro Graduate Research Scholarship and the Humanities Graduate Research Award.

ABSTRACT

The purpose of this study was to evaluate Sister Friend, a mentoring program in Yolo County, California serving low-income adolescent mothers and their infants. The primary objective was to determine if participating in the Sister Friend program improved the adolescent mother's parenting class attendance, the home environment, parenting behavior and child development outcomes. This study employed a quasi- experimental design to evaluate the effectiveness of the Sister Friend Program. It compared adolescent mothers participating in both the Sister Friend and Cal Learn program with a similar group of mothers receiving Cal Learn-only services. Data were collected upon entry into the Sister Friend Program and again six months later. The second aim of this study was to evaluate the implementation of the Sister Friend Program. Interviews with adolescent mothers and their mentors were conducted to examine how frequently adolescent mothers met with their mentors, the types of activities they were involved in, program support for the match, and the quality of their relationship.

In spite of a small sample, this study found that adolescent mothers and their infants participating in the Sister Friend Program had significantly better outcomes than those in the Cal Learn-only group. Compared to Cal Learn-only participants, adolescent mothers in the Sister Friend Program attended more parenting classes; had higher total HOME scores at post test, and showed greater improvements on the Organization of the Environment subscale of the HOME between pre and posttests. Their infants had higher percentages of complete and on-time immunizations and fewer delays at posttest in the personal-social domain on the Revised Denver Developmental Screening Test than those in Cal Learn. However, the program implementation evaluation found that only four of the 17 mentor relationships lasted throughout the six-month study period. Recommendations are made for future research and an integrated service delivery system for adolescent mothers and their children.

Table of Contents

Abstract	iii
Chapter I. Introduction	1
Demographic Trends	2
Detrimental Outcomes Associated with Teenage Childbearing	3
Prematurity and Low Birth Weight	
Poor Health Care (Pre and Post Natal)	
Developmental Delays	
Parenting Beliefs and Practices	
Natural Mentors: A Buffer for Adolescent Mothers and Their Children	9
Chapter II. Mentoring Programs	
Growth in Mentoring Programs	13
Review of Major Evaluations of Mentor Programs for High Risk Youth	14
Evaluations of Mentor Programs for Adolescent Mothers	18
Major Intervention Programs for Adolescent Mothers Not Involving Mentors	20
The Sister Friend Program, Yolo County, California	24
Objectives of Current Study	29
Chapter III. Methodology	31
A. Evaluation of Program Outcomes	
B. Evaluation of Program Implementation	40
Chapter IV. Results	42
A. Program Outcomes	42
B. Barriers to Program Implementation	49
Chapter V. Discussion	62
Research Implications	63
Intervention Implications	67
Need for integrated services for adolescent mothers and their offspring	75
Plan of Action	78
Appendices	
A. Assessment Tools	80
B. Infant and toddler immunization schedule	85
C. HOME inter-observer reliability coefficients	86
D. Services in Yolo County	87
References	89
List of Tables	
Table 1: Demographic Variables: Sister Friend and Cal Learn-only participants	33
Table 2: Pre-test measures: Sister Friend and Cal Learn-only participants	34
Table 3: Pre-post test changes on NSSQ scales	42
Table 4: Pre-post test changes on HOME Inventory	46
Table 5: Pre-post test changes on RDDST	47

CHAPTER I. INTRODUCTION

Infants of adolescent mothers are at greater risk for experiencing adverse physical, cognitive, social-emotional and economic outcomes than infants born to older mothers (Brooks-Gunn & Furstenberg, 1986). Why they are at a greater risk is more difficult to explain. Socio-economic variables (e.g., maternal income and education) account for most of the variance between the developmental outcomes of children born to adolescent mothers relative to those born to older mothers (Brooks-Gunn & Furstenberg, 1986; Carlton & Poole, 1990). But because income and education are global variables, they tell us little about the mechanisms that contribute to children's developmental outcomes. Maternal behavior is consistently associated with the quality of social- emotional, cognitive and physical development in children (Ainsworth, Blehar, Waters, & Wall 1978; Bowlby, 1982; Biringen & Robinson, 1991; Sroufe, 1988). When older mothers and younger mothers of similar economic and educational status are compared, adolescent mothers have been found to provide effective physical care for their infants; however, they tend to provide less intellectual stimulation and generally respond less sensitively to their children's needs than older mothers (Fry, 1985). Adolescent mothers are also more likely to have less realistic expectations for their children's development and less knowledge of child development than older mothers (Fry, 1985; Stoiber & Houghton, 1993; Vukelich & Kliman, 1985). Adolescent mothers' expectations for and interactions with their infants along with the home environment that they provide partially account for poorer developmental outcomes in their children (Camp, 1996; Carlson, LaBara, Scalfani & Bowers, 1986; Miller, Miceli, Whitman & Borkowski, 1996).

The risks associated with adolescent motherhood are well documented; however, many adolescent mothers raise healthy, competent infants. Longitudinal research on

adolescent mothers indicates that despite the considerable risks, a positive, supportive relationship with an adult can help teen mothers adjust successfully to the simultaneous demands of motherhood and their transition to adulthood (Brooks-Gunn & Furstenberg, 1986; Lefkowitz, 1986; Rhodes & Davis, 1996; Werner & Smith, 1992).

Demographic Trends

Although estimates of births to teenagers vary[1], rates have been declining over the past six years (National Center for Health Statistics (NCHS), 1997). Despite this trend, teenagers in the United States are still more likely to become pregnant than teenagers in any other industrialized country (Harris, 1996)[2]. The United States teen birth rate for 1996 was 54.7 births per 1,000 adolescent females aged 15-19 (NCHS, 1997). Within the nation, California has the highest teenage birth rate (Mecca, 1995) with 68,284 live births to teens under 19 years of age during 1995 (California State Department of Health Services (CSDHS), 1996). This is significant because California is the largest state in the nation with approximately one tenth of the nation's children.

Although the decline in the national teenage birth rate is encouraging, a somewhat different picture emerges within particular geographic areas. In Yolo County, where this study took place, the birth rate to teens is also declining and in 1996, at 48.4 per 1,000

[1]The definition of a teen varies. Some define it as age 20 and under others as age 19 and under while some include only those under age 18. Adding to the confusion, births to teens is sometimes reported as a percentage based on the number of births for the population for that year, and sometimes it is reported as a rate -- the number of births per 1,000 adolescent females. The advantage of a percentage is that estimates are more accurate because they can be calculated annually. The problem is that there is no reference to the teen population. Rates allow more accurate comparisons to be made because it is the number of births per 1,000 adolescent females, however, the number of adolescent females is based on census data (which is collected once every ten years) and are adjusted according to fertility rates, immigration and migration trends.

[2]Some researchers suggest that the secular trend of earlier onset of puberty for both males and females could be associated with increases in teen birth rates. However, these cross cultural data suggest that although earlier age of menarche is universal to industrialized nations, high teen birth rates are not

teens, it is less than both national (54.7) and state (62.5) rates (NCHS, 1997). The Yolo County teen birth rate is closely in line with the Maternal Child and Adolescent Health (MCAH) year 2000 objective of no more than 50 births per 1,000 teens (CSDHS, 1996). As a result, Yolo County is not considered to have an "officially" high teenage birth rate and was denied state funding to develop a teenage pregnancy prevention strategy. Unfortunately, this countywide indicator masks very high teenage pregnancy rates in various pockets within the county. When the county is divided up by zip codes, the teen pregnancy rate in Esparto is 143.24 per 1,000 teens, 102.52 in Broderick and 74.59 in Southport (CSDHS, 1996). All of these rates are *markedly* higher than the MCAH Healthy People 2000 goal. Thus, reducing these rates and providing support to promote the healthy development of these infants and mothers is of critical importance -- especially considering the potential adverse outcomes for adolescent mothers and their children.

Detrimental outcomes associated with teenage pregnancy

Low Birth Weight

Infants of teenage mothers are at considerable risk of low birth weight, congenital defects, developmental disabilities and infant mortality (Klein, 1974, Osofsky, Osofsky & Diamond, 1988). The primary health related problems of infants born to teenage mothers are prematurity and low birth weight. Granger (1982) reports that more than one-fourth of the infants born to mothers under age 16 are low birth weight (LBW) - under 5 pounds, 8 ounces and preterm - under 37 weeks gestation. LBW babies are two to six times more common among adolescent mothers than among older mothers (Hetchman, 1989). In Yolo County, 8.2 percent of teen mothers gave birth to LBW babies whereas only 4.9 percent of mothers 20-34 years of age gave birth to babies of LBW (CSDHS, 1997).

Low birth weight correlates with a variety of other developmental problems. These infants suffer a higher incidence of neonatal complications, such as respiratory distress, hypoglycemia, jaundice and other metabolic and neurological disorders (Granger, 1982). Even when sociodemographic variables are controlled for, low birth weight children score significantly lower on intelligence tests than do children of normal birth weight (Hack, Klein & Taylor, 1995).

Poor health care (pre and post natal)

Inadequate maternal nutrition and prenatal care increase the likelihood that a child will be born LBW (Klein, 1974, Osofsky, et al., 1988). Factors that can reduce the incidence of LBW include: good prenatal care including early and regular obstetric exams, education on the importance of nutrition, exercise, good health habits, basic baby care, psycho social interventions to ensure adequate social support for the mother and family, and birth preparation (Carlton & Poole, 1990). Unfortunately, adolescents are about twice as likely as older mothers to delay seeking prenatal care until the third trimester or not seek any care at all (Geronimus, 1986). In Yolo County, only 49% of pregnant teens under age 17 sought prenatal care in their first trimester compared to 71.1% of women aged 20 to 34. Pregnant teens also receive poorer quality prenatal care than older women (CSDHS, 1997).

Adolescent mothers are also more likely to neglect the health care needs of their infants and toddlers. For instance, infants of adolescent mothers are less likely to receive regular medical care and more likely to have late or missed immunizations than the infants of older mothers (Hetchman, 1989).

Developmental Delays

Compared to children born to older mothers, children born to adolescent mothers are more likely to experience developmental delays (Brooks-Gunn & Furstenberg, 1986; Osofsky, Hann & Peebles, 1993; Klein, 197 ; Osofsky et al., 1988). Apgar scores at 1 and 5 minutes after birth for infants of young mothers were lower than for infants of older mothers (Granger, 1982). Other researchers report that there are small but consistent differences in cognitive development in the preschool and early childhood years (Furstenberg, Brooks-Gunn & Chase-Lansdale, 1989). Infants of adolescent mothers scored significantly lower on the Bayley Scale of Infant Development (103.7 vs. 113.2 respectively, $p<.001$) across their six and twelve months testing intervals than infants of older mothers matched on race, parity, prenatal care and socio-economic status (Carlson et al., 1986). A longitudinal study found that the children of adolescent mothers scored in the slow learner range on the Stanford-Binet Intelligence Scale, Form L-M (mean = 81.5, range 52-110) when they were assessed at three years of age (Miller et al., 1996).

Parenting Beliefs and Practices

Differences in the cognitive development of children born to adolescent mothers and those born to older mothers are poorly understood. It is possible that the child rearing attitudes of adolescent mothers correlate with their children's behavior and cognitive development. "[W]hile teen mothers make strong efforts to be 'good' parents, in the sense of providing effective physical care, the overall intellectual stimulation of children is significantly below that of children reared by adult mothers" (Fry, 1985 p. 47). Maternal responsiveness and appropriate stimulation play a critical role in children's physical, cognitive and social emotional development (Ainsworth, et al., 1978; Biringen &

Robinson, 1991; Bowlby, 1982; Spitz, 1965). When compared to older mothers, adolescent mothers have less knowledge of child development and immature expectations of their maternal role which seems to affect they way they interact with their children (Fry, 1985; Stoiber & Houghton, 1993; Vukelich & Kliman 1985). Teen mothers with immature expectations and little knowledge of child development have more hostile child rearing attitudes and use more authoritarian discipline. Authoritarian, punitive and hostile child rearing attitudes and behaviors among adolescent mothers tend to contribute to poorer physical, cognitive and social-emotional development in children (Camp, 1996; Miller et al., 1996; Stoiber & Houghton, 1993).

Vukelich and Kliman (1985) found that teen mothers are more likely than older mothers to expect the infant's behavior to mature more rapidly than the norm. Compared to older mothers, teen mothers scored significantly lower on the Parent Expectation Scale (PES), $p<.001$, which assesses a parent's knowledge of the physical, intellectual and social-emotional development during a child's first three years. More than 50% of the teenage mothers expected babies to perform 12 of the 31 items earlier than child development norms indicate. Parents may be more punitive if they believe that their child has the ability to perform a particular behavior but chooses not to (Vukelich & Kliman, 1985).

Because a mother's education and occupation affect expectations for infant development, Fry (1985) conducted a study controlling for these variables. She examined the parenting behavior of 105 primapara adolescent mothers with infants 18 to 19 months old. Younger mothers scored lower than older mothers on the Knowledge of Child Development Scale indicating that they had unrealistic expectations for their children. Videotaped mother-child interactions showed that younger mothers were more controlling

(e.g. ordering the child or taking over and doing things the child was developmentally capable of doing) and provided less stimulation than older mothers. Maternal age, maturity of expectation and knowledge of child development accounted for 71% of the total variance in the amount of physical and verbal stimulation mothers provided to their infants. These findings support those of a previous pilot study, in which 24 mothers (age 16-25) were shown videotapes of mother-infant interactions and asked to rate the appropriateness/ inappropriateness of mothers' behaviors (Fry, 1985). In this study, younger mothers displayed difficulty in distinguishing appropriate from inappropriate behavior. In particular, they approved of aloof and passive maternal behaviors.

An adolescent mother's knowledge of child development, expectations about parenting and observed maternal behavior predicts their children's social-emotional and cognitive development. Stoiber and Houghton (1993) assessed teenage mothers' knowledge of child development via the Knowledge of Child Development Inventory (KCDI) and rated positive and mature parenting expectations with the Personal Expectations about Parenting (PEP) and Child Rearing Beliefs (CRB) scales. Forty mother-child dyads were videotaped for 15 minutes. Observers, blind to the purpose of the study, rated the children's coping behavior. The children were 4 to 22 months old. Parent expectations about their own and their children's behavior accounted for a significant proportion of variance in their children's coping behavior (15% and 10% on the sensorimotor and reactive behavior scales respectively). More rigid and controlling child-rearing beliefs were associated with the lowest level of self-initiated coping behavior in children.

In a rare longitudinal study, Camp (1996) assessed the cognitive and child rearing attitudes of 43 adolescent mothers when their children were infants and again when children were school age. Children of adolescent mothers had average IQ's but higher than

expected rates of hyperactivity and academic problems. Maternal vocabulary and hostile child rearing attitudes correlated with below average IQ scores and behavior problems of their school-aged children (Camp, 1996). Another longitudinal investigation of 70 primapara, adolescent mother-child dyads examined the relationship between prenatal maternal knowledge of child development (assessed in the third trimester), perceptions of parenting (assessed six months postnatally) and the intellectual, linguistic and behavioral development of children when they reached 3 years of age (Miller et al., 1996). Mothers who were assessed as having more prenatal knowledge of child development had children who received higher scores on the Stanford-Binet test ($p<.01$) and the Peabody Picture Vocabulary Test ($p<.05$). Their children also displayed fewer internalizing and externalizing behavioral difficulties on the Child Behavioral Checklist ($p<.01$). Mothers with less knowledge of child development perceived their parenting role as more stressful and their children as more difficult (Miller et al., 1996).

Home Environment

It is well established that the home environment plays an important role in a child's development. The most extensively used assessment of the home environment is the Home Observation for Measurement of the Environment (HOME) Inventory (Bradley & Caldwell, 1968). However, very little research has been conducted specifically on the home environments of adolescent parents (Carlson et al., 1986; Luster & Dubow, 1990). A study of 6,000 adolescent mothers with school age children found that HOME scores are associated with the mother's level of intelligence, her parents' years of education, and household composition (Luster & Dubow, 1990). Controlling for race, parity, prenatal care and SES, Carlson et al. (1986) compared the HOME scores of 58 adolescent mothers

with those of 59 adult mothers. Data on mothers were collected antepartum, at delivery and postpartum. HOME subscales one and four (maternal responsivity and provision of play materials) were used to assess the infants' home environments at six and twelve month intervals. HOME scores were significantly lower for the infants of adolescent mothers (mean scores were 25.4 vs 31.6 respectively, $p<.001$) indicating that the home environments of infants born to adolescent mothers were significantly less nurturing than those of controls.

Natural Mentors: A Buffer for Adolescent Mothers and Their Children

Despite increased risks for children born to adolescent mothers, negative developmental outcomes are not inevitable. They are moderated by individual, family and community characteristics (Furstenberg, Brooks-Gunn & Morgan, 1987; Klaw & Rhodes, 1995; Resnick, Bearman, Blum, Bauman, Harris, Jones, Tabor, Beuhing, Sieving, Shew, Ireland, Bearinger, & Urdy, 1997; Werner & Smith, 1992). Adolescent mothers who formed supportive relationships with at least one adult tended to fare well despite the considerable odds against them (Brooks-Gunn & Furstenberg, 1986; Rhodes, Ebert & Fischer, 1992; Werner & Smith, 1992). In Werner and Smith's longitudinal study of the children of Kauai, which followed an entire, multi-ethnic cohort born in 1955 from birth to age 40, 28 (or 8%) of the women gave birth during their teens. The majority of the teenage mothers had scored in the normal range of intelligence tests at ages 2 and 10, but in late adolescence almost half had developed problems in school, doubted their self-efficacy and had low self-esteem. Twenty-six of the original group of teen mothers were assessed again in adulthood. Sixty percent of this subgroup reported being satisfied with their lives at age 32 (Werner, 1996). Seventy-seven percent were rated as having an

adequate to good adaptation to mid-life at age 40 (Werner, 1996). Among the protective factors in their lives were: average to above average Primary Mental Ability (PMA) test scores at age 10, participation in cooperative school activities, positive identification with their fathers, and stable relationships with positive role models that included elder mentors and teachers.

Inspired by Werner and Smith's research, Rhodes and colleagues (Klaw & Rhodes, 1995; Rhodes & Davis, 1996; Rhodes et al., 1992; Rhodes, Gingiss & Smith, 1994; Rhodes, Contreras & Mangelsdorf, 1994) have examined the role of naturally occurring mentor relationships on outcomes among African American adolescent mothers (Rhodes et al., 1992; Rhodes & Davis, 1996) and among young Latina mothers (Rhodes et al., 1994). These studies reached similar conclusions: when levels of life stress and economic strain were controlled for, teenage mothers with mentors were significantly less depressed than adolescents without mentors. Compared to adolescent mothers without mentors, teenage mothers with mentors reported significantly lower levels of depression ($p<.05$), anxiety ($p<.05$) and greater satisfaction with support resources ($p<.05$) (Rhodes & Davis, 1996). Mentor support was associated with adolescent mothers' belief in education as a link to opportunities and with their heightened optimism about the future. Compared to those without mentors, they were more likely to be engaged in activities related to their career goals (Rhodes & Davis, 1996). Collectively, these studies provide empirical support for the hypothesis that a strong relationship with a mentor may have positive outcomes for adolescent mothers and their children.

IN SUM

The prevalence of teenage pregnancy in the United States is well documented and substantially higher than in any other industrialized country (Children's Defense Fund, 1998). This is particularly alarming considering the range of adverse developmental outcomes for both adolescent mothers and their children. Adolescent mothers are less likely to seek and obtain prenatal care and are more likely to give birth to low birth weight and premature infants than older mothers. They are also poorly prepared for caring for their infants. Compared to older mothers, they have less knowledge of child development and unrealistic expectations for their children's development. They tend to use authoritative and punitive child discipline techniques and provide their infants with little stimulation and nurturance; few seek and obtain routine medical care for their infants. These negative consequence of adolescent childbearing extend to the next generation. Children of adolescent mothers are at a greater risk of poor cognitive and social-emotional development outcomes, and they are more likely to become adolescent parents than children born to older mothers are.

The risks associated with adolescent childbearing are well documented. The current challenge is to understand why many young mothers and their infants do well despite the odds. Longitudinal studies with multiple ethnic groups and different cohorts find that supportive relationships with an adult can buffer adolescent mothers from the risks commonly associated with adolescent pregnancy and child bearing. Despite seemingly strong theoretical support for mentor programs, the relationships identified in research are inherently different from those fostered by programs. The relationships identified in the literature that served as protective factors for youth occurred naturally or spontaneously. In these relationships, youth played an active role in selecting his/her mentor. On the other

hand, mentor programs by definition are more structured – program administrators match youth with someone whom they have never met.

CHAPTER II. MENTORING PROGRAMS

Growth In Mentoring Programs

Demographic trends coupled with findings from studies of resilient youths have contributed to the appeal and growth of mentoring as a prevention and intervention strategy. The Commonwealth Fund began to support mentor projects in the early 1980s primarily to link isolated urban youth with positive role models. Mentoring as a movement gained momentum in the late 1980s with a rise in mentor programs at the national and locals level as well as in the public and private sectors (Freedman, 1993). Hundreds of mentoring programs have emerged in the last few years and more recently a few have been designed to meet the needs of adolescent mothers (Rhodes & Davis, 1996).

In California, the state with approximately one tenth of the nation's children (CDF, 1998), former Governor Pete Wilson proposed five million dollars of state funds to expand the California Mentor Institute (CMI) to promote mentoring for at-risk children, including teenage mothers (Wilson, 1997). He also established the California Mentor Council to develop a multi-year strategic plan to expand mentoring throughout the state, increase public awareness about the benefits of mentoring, and recruit and train new mentors (Powell, 1997). Mentor programs have expanded at the local level as well. In 1997, Yolo County was awarded $500,000 to expand the use of mentors for at-risk youth. Yet, little is know about the effectiveness of mentor programs -- specifically those serving pregnant and parenting adolescent mothers.

In spite of ongoing, adverse circumstances, adolescents who have adjusted well often attribute their success to the influence of a natural mentor, such as a special aunt, neighbor, or teacher (Rhodes &. Davis 1996; Werner & Smith, 1992). In these

relationships, youths themselves played an active role in selecting their "mentor". In intervention programs, on the other hand, an administrator matches youths with volunteer mentors. Although the better mentor programs consider the youths' preferences and the volunteer mentors' characteristics in making the match (Tierney, Grossman & Resch, 1995), "trying to describe which youth need mentoring or who makes the best mentee is largely avoided" (Flaxman & Ascher, 1992, p. 45). This leads to the question of whether or not programs that match youths with mentors can achieve results similar to those found in natural settings.

Review of Major Evaluations of Mentor Programs for At-Risk Youth

Research is just beginning to illuminate the important characteristics of mentors and youths that improve the odds for beneficial outcomes. The more successful programs define a mentor as an older person who offers support, guidance and concrete assistance as the younger partner goes through a difficult period, enters a new area of experience, takes on an important task, or corrects a previous problem (Flaxman, Ascher, & Harrington, 1988)[3]. In successful matches, youth, in turn, identify with or form a strong interpersonal relationship with their mentors and as a result both benefit from the relationship (Flaxman, et al., 1988). A natural mentor is someone you can count on to be there for you, someone who believes in you and cares deeply for you, someone who inspires you to do your best or someone who really influences what you do and the choices that you make (Rhodes et al., 1992). The goal of interventions is to provide mentors who can fill these needs.

[3]Although mentors are older than their mentees, the age span is extremely variable.

To accomplish this goal, Styles and Morrow (1992) studied the processes through which programmatic mentor relationships were developed and sustained between mentors (55 years and older) and at-risk youth (between the ages of 12 and 17) in four Linking Lifetime Programs[4]. Of the 26 pairs studied, 17 were identified as being satisfied with the relationship and nine were identified as being dissatisfied. Satisfied relationships were characterized by feelings of liking, attachment to, and commonality with the other member, commitment to and a desire to continue the relationship, a mentor's perception of appreciation, and a youth's view of the mentor as a source of support. Contrary to what might be expected, successful and unsuccessful pairs showed no differences in the frequency or type of activities the pairs engaged in. Rather, successful and unsuccessful pairs differed primarily in their styles of interaction (Styles & Morrow, 1992). In successful pairs, the mentor was able to identify areas in which the youth required help and was able to find ways that the youth accepted. The mentor waited for the youth to determine when and how trust was established and they let youth help determine their activities. They identified the youth's interests, took those interests seriously and worked on the areas in which the youth was most receptive to help.

Relationship processes significantly differentiated the two groups. Mentors in unsuccessful relationships began the relationship by asking the youth to talk about sensitive issues (i.e., poor school performance, dysfunctional/abusive family behaviors, criminal records...). They viewed disclosure as an important criteria for a successful relationship while youth viewed their mentors' efforts to force disclosure negatively (Styles & Morrow, 1992). Conversely, mentors in successful relationships were more likely to

[4] The Memphis program serves seventh and eighth grade teen mothers, the Los Angeles and Miami Programs target middle school youth living in high-risk neighborhoods, and the Springfield,

offer consistent reassurance and kindness. They also reminded the youth that they were available to talk any time and that they enjoyed their time with the youth. When they became aware of problems, they tried to remain neutral and avoided reprimanding and judging; instead, they offered instruction that the youth felt was useful.

How mentors responded to problems in the relationship also played a critical role in the mutual satisfaction with the relationship. The most common problem mentors initially faced was missed appointments and unanswered telephone calls (Styles & Morrow, 1992). Mentors in successful pairs were persistent with the youth, explained how much they enjoyed their meetings and expressed their desire to continue meeting. Mentors frequently reported difficulties with the youths' families. Mentors in successful relationships tended to be sensitive to the circumstances that the youth were growing up in and were more likely to inform the parents of the purpose of the program and their role in the youth's life -- making it very clear that they were not the parents' replacements. Unlike mentors in unsuccessful relationships, they stayed out of family arguments and refrained from discussing things with parents that might make the youth feel like they were being betrayed. Mentors in unsuccessful relationships tried to extend their "helping" role to other members of the family. As a result, they put their relationship with the youth at risk.

Styles and Morrow's study thus identified several critical aspects concerning the qualities of successful mentor relationships and provides a key link to understanding how youth become engaged with their mentor. Yet, the question remains -- can these supportive mentor relationships positively influence behavioral outcomes for youth? A rigorous evaluation of the Big Brother/Sister Program indicates that they can indeed (Tierney et al., 1995). This program considers the youth's preferences in creating a match

---

Massachusetts program serves young offenders

and provides on-going support for the match. In this study, 959 youth (ages 10 to 16) who applied to the Big Brother/Sister Program and came from low-income, predominantly one-parent homes, were randomly assigned to either a mentor or a waiting list (Tierney et al., 1995). Significant differences were found between the little brothers/sisters and wait list controls. Little brothers/sisters with mentors were 45.8% less likely than controls to start using illegal drugs (excluding alcohol) -- minority youths with mentors were 70% less likely than controls. For alcohol use, little brothers/sisters with mentors were 27% less likely than controls to start drinking. Minority females participating in the program were 50% less likely than controls to start drinking. Little brothers and sisters with mentors skipped school half as may days as controls[5], felt more competent about doing school work and showed modest gains in their grade point averages. Little brothers/sisters with mentors also reported better relationships with their parents and peers relative to controls, but showed no significant improvements in self-concept, nor in the number of social and cultural activities in which they participated.

The researchers attribute these positive findings to a combination of both one-to-one interaction and the support the program provided for the match. Frequency of contact in the one-to-one interactions was very important. The pairs met at least three times a month and many talked over the phone. The mentor was defined as a friend, not a teacher or preacher. The role of the mentor was to support the youth in his/her endeavors, not to change their character. In addition to these relational components, the researchers also attributed part of the success to the program's infrastructure. Volunteers were carefully screened to eliminate those who had difficulty keeping their commitments and those who might pose a safety risk. The matching took into account preferences of the youth, family

[5]This effect was strongest among females with a mentor

and volunteer. There was also an important mentor training component that emphasized communication, relationship building and limit setting skills. The program also provided intensive supervision and support of each match as well as assistance when difficulties arose.

These studies indicate that the benefits of mentoring do not occur automatically. Program quality standards and support provided to developing mentor relationships are critical components. Effective matches require: screening, an emotional and time commitment from the mentor, initial and on-going training for the mentor, and sufficient support and supervision (Morrow & Styles, 1995; Sipe, 1996). Effective mentoring programs share the following features: supportive management; integration into a larger career development or management training effort; voluntary participation; careful matching of mentors and youth; orientation for mentors and youth; "structured flexibility" to allow mentors to use their own style; preparation of youth; delineation of roles to prevent problems; and careful monitoring of the program (Phillips-Jones, 1983).

Evaluations of Mentor Programs for Adolescent Mothers

There is only one published evaluation of a mentor program specifically for teenage mothers -- Project Redirection (Polit, Quint & Riccio, 1988). Project Redirection targeted primapara teenagers age 17 or younger who lacked a high school diploma or General Equivalency Diploma (GED) and were receiving Aid to Families with Dependent Children (AFDC). The program began in 1980 with 805 teen mothers in four cities across the U.S. (Boston, New York, Phoenix and Riverside). In 1983 it was expanded to seven more sites across the nation. The program's objectives were to help participants return to school, delay subsequent pregnancies, acquire employability and life management skills through

linking them to existing community services, providing workshops, and counseling. To meet these objectives, teenage mothers were matched with adult female mentors in the community who were to provide ongoing support, guidance and friendship. Mentors also served as confidants, monitored the teen's activities, relayed information to staff, reinforced the program's messages and provided teens with a positive role model. Pairs met approximately five hours per week. Mentors received a $15 per week stipend to cover transportation expenses and to enable mentors to occasionally treat the teen to lunch or a movie. Teens received a $30 per month stipend to encourage participation. The quality of these relationships varied, but most of the teens felt that their mentors were "very important", "nice", and "easy to talk to" and gave good advice and concrete assistance. For some, the mentor served as a surrogate mother.

Project Redirection's evaluation used a quasi-experimental design. It compared program participants to a control group of teens with similar socio-economic backgrounds. Both groups received community services including parenting education, medical care, birth control counseling and employment activities[6]. Project Redirection's distinguishing feature was its mentor component. Teen mothers and their children were followed for five years. After one year, teens in Project Redirection were more likely to attend school (56%) than controls (49%, $p<.05$) a slightly higher percent were employed (49% vs. 38%, $p<.01$). The greatest program effects were in the areas that women were most strongly interested: parenting and employment instruction ($p<.001$). Teen mothers with a mentor were more likely to breastfeed their infants than controls (50% vs. 20%, $p<.001$). Even at the five year follow up, Project Redirection participants provided a more

enriched environment for their children ($p<.001$), their children had higher vocabulary scores (86 vs 80, $p<.01$) and fewer problem behaviors (92 vs. 105, $p<.05$) relative to controls. These findings must be interpreted cautiously for several reasons. Of the original 805 teen mothers in Project Redirection, there were 700 teens at the 3 year follow up and only 42.8% of the original sample ($n = 300$) remained at the five year follow-up. Within the original sample, 56.3% were pregnant with their first child during the first assessment, 4.4% were pregnant with a subsequent child and 39.3% were nonpregnant parents. Information about sample characteristics at the follow-up assessments was not provided. Also, the researchers did not provide information about the duration of services that teen mothers received, or the ages of their children.

Major Intervention Programs for Adolescent Mothers Not Involving Mentors

Project Redirection stands in marked contrast to other teen pregnancy intervention programs that typically focus only on one domain such as finishing high school, getting a job and leaving welfare. Even programs that try to address multiple domains are often evaluated on global outcome measures such as school achievement, employment, and repeat pregnancies. The principal goal of these programs is to reduce costs to the public welfare system. Five such programs are: 1) the Learning, Earning and Parenting Program (LEAP); 2) the Teenage Parent Demonstration; 3) the JOBSTART Demonstration; 4) New Chance; and 5) Cal Learn.

Project LEAP, developed in Ohio in 1989, provided financial incentives and penalties to promote school attendance. The Teenage Parent Demonstration Project in Newark and

[6]Because of nation-wide increases of services to parenting teens, it was not possible to compare Project Redirection participants with teens not receiving services. Teens not receiving any services would be

Camden, New Jersey and Chicago, Illinois required all teenage mothers receiving Aid for Families with Dependent Children (AFDC)[7] to participate in job search or education programs. Money was deducted from their AFDC check if they failed to register. Teens also received case management, child care, workshops on parenting and transportation services. The JOBSTART Demonstration was implemented at 13 sites across the country between 1985 and 1988 to increase employment and earnings among economically and educationally disadvantaged youth -- one-fourth were adolescent mothers. Evaluations of project LEAP and the Teenage Parent Demonstration project indicate that these programs were unsuccessful in achieving their goals (Quint, Polit, Bos & Cave, 1994; Maynard, 1994). While teens in JOBSTART were more likely to receive a general equivalency diploma (GED) than controls, this did not lead to higher earnings (Cave, 1993).

New Chance, one of the more extensively evaluated teen parent intervention programs was a national demonstration program that operated between 1989 and 1992 in ten states (California, Colorado, Florida, Illinois, Kentucky, Michigan, Minnesota, New York, Oregon and Pennsylvania) at sixteen program sites which were no longer operational at the time of the follow-up. It provided employability development classes, job training, health education, family planning classes, life skills education, case management, and free child care. Adolescent mothers were allowed to remain in the program for up to 18 months, with an additional year of follow-up case management (Quint et al., 1994).

The New Chance evaluation focused on 2,322 women aged 16-22 all of whom gave birth in their teens and were receiving AFDC. Individuals were randomly assigned to New

---

extremely isolated (Polit et al., 1988).

[7] The Personal Responsibility and Work Opportunity Act signed by President Clinton on August 22, 1996 eliminated the AFDC program and replaced it with a time-limited program called Temporary Assistance for Needy Families (TANF). After the passage of TANF, states had to conform their statutes to the federal law. In 1997, California passed the California Works and Responsibility Act.

Chance or a control group without New Chance services and followed for 18 months.[8] Of the women randomly assigned 2,088 completed assessments at the 18 month follow-up point. During this period, 43% of the teen parents in New Chance obtained a GED compared to 30% in the control group; yet, 80% of each group were still on welfare and over half of each group had a second pregnancy (Quint et al., 1994). There were also no significant improvements in the mother's literacy level or health outcomes.

The New Chance evaluation has particular relevance to the present study because it is one of the few that examined child outcomes. The mothers' self-reports and the Home Observation for Measurement of the Environment (HOME) Scale were used to assess the quality of the child's overall home environment. The scores of mothers in New Chance were compared to the sample of young mothers from the 1986 National Longitudinal Survey of Youth (NLSY). Although differences were small, mothers in New Chance reported less authoritarian childrearing attitudes than mothers in the NLSY group (21.3 vs. 23.7, $p<.01$). In addition, mothers in the experimental group were more likely to use center-based care (most of which was provide on-site by the New Chance programs) and used child care on a more regular basis than controls ($p<.01$). One of the 16 New Chance programs had dramatic success in dissuading single mothers from having a second baby. Researchers attributed this achievement to *one on one counseling* that supported the teenage mother, provided contraception information, and delivered messages about the negative effects of pregnancy on employment opportunities (Granger, 1994). These findings must be interpreted cautiously because there were no pre-test data and the children of the teenage mothers represented a wide age range (from 18 months to 8 years).

[8]Another report, not yet released, will include 42-month follow up data analyses.

Similar to New Chance, California's program, Cal Learn, aims to help pregnant and parenting teenagers who receive Temporary Aid for Needy Families (TANF)[9] to stay in school and reduce their chances of long-term welfare dependency. Adolescent mothers must participate in Cal Learn in order to receive TANF assistance. Cal Learn rewards mothers who attend school regularly and obtain an above 'C' grade point average with a $100 bonus. If they receive a 'D' average or below or do not attend school regularly, $100 is deducted from their cash assistance. Upon graduation from high school or obtaining a GED, mothers receive an additional $500 cash bonus. This evaluation is currently in progress.[10] Teen mothers were randomly assigned to one of four groups. Three groups received interventions (case management, financial incentives and both) and the fourth served as a control. Results from this study are not yet available.

In Sum

Most programs that do not use mentors -- LEAP, the Teenage Parent Demonstration, JOBSTART, New Chance, and Cal Learn -- aim to improve high school attendance and graduation rates and provide job training to eliminate the adolescent mother's need for public financial assistance. In spite of extensive intervention efforts and expense, evaluations to date indicate that these programs have been unsuccessful in achieving their goals. It is not clear whether the intervention components or outcome measures contributed to their unsuccessful outcomes. Because each of these program evaluations looked at global indicators, such as GED obtainment and subsequent income earnings, it is possible that subtler yet important program impacts were overlooked. For instance, it is

[9] Ibid.

possible that these teens received more prenatal care than those not participating in the program did. Prenatal care may have contributed to healthy births, which can decrease the amount the public has to spend on subsequent medical costs. Even though the New Chance evaluation included child health outcomes and child care use, these measures reveal little about the children's actual health and provide no information on the children's developmental status.

Mentor based programs like Project Redirection, in conjunction with other community supports, may be more successful in ameliorating some of the risks commonly associated with teenage motherhood. Unfortunately, there is only one published evaluation on this type of intervention. The Project Redirection evaluation indicates that mentoring may improve the lives of both the adolescent mother and her infant. Because of the high attrition rate at the five year follow-up, program effects on the child are inconclusive. However, the findings from Project Redirection in conjunction with findings from the Big Brother/Sister program strongly support the hypothesis that mentor programs can effectively support the healthy development of at-risk youth.

The Sister Friend Program, Yolo County, California

The Sister Friend Program uses volunteer mentors to address the complex needs of adolescent mothers. It receives funds from both public and private, non-profit organizations including the Yolo County Department of Alcohol and Drug Programs, Communi-Care Health Centers, Yolo Unite and the Youth Connections Challenge Grant. It is a relatively low cost program consisting of an executive director, three teen

[10] A report to the California Legislative Analyst's Office, May 1994, Nani Coloretti, U.C. Berkeley. Also personal communication with Oshi Reulas, Cal Learn Demonstration Project Coordinator.

facilitators (who recruit volunteers and adolescent mothers) a half time parenting class instructor and volunteer mentors.

The Sister Friend program is modeled after the Birthing Project in Sacramento County, California, which uses mentors to help women recover from substance abuse. In 1991, Mary Jo Bryan, executive director of Sister Friend, introduced the Sister Friend project into Yolo County initially to help women recover from substance abuse. However, because of the growing numbers of teenage births and difficulties in serving this population via traditional avenues, the Sister Friend Program expanded in 1995 to include pregnant and/or parenting teen women. In 1995, the program served two teen parents and in 1997, it served 29 pregnant and/or parenting teenage mothers. In addition to the growing number of women it serves, it has received much recognition as a "successful" intervention program[11]. Yet, to date, the program has not been evaluated. Such an evaluation could enhance our understanding the effectiveness of mentoring programs and in that process, identify ways to improve services for adolescent mothers and their children.

Program Goals

The goal of Sister Friend is to provide adolescent mothers with volunteer mentors in order to facilitate the development of healthy babies and families and to prevent out-of-home placements due to child abuse, neglect or parent incapacity. Sister Friend's program components are similar to those identified in other successful mentor programs. Potential mentors are screened with criminal background checks and an interview process. Mentors

[11] Most recently, it received the State of California Maternal and Child Health award.

are then required to attend at least one training session. The Sister Friend program has the following explicit training objectives:

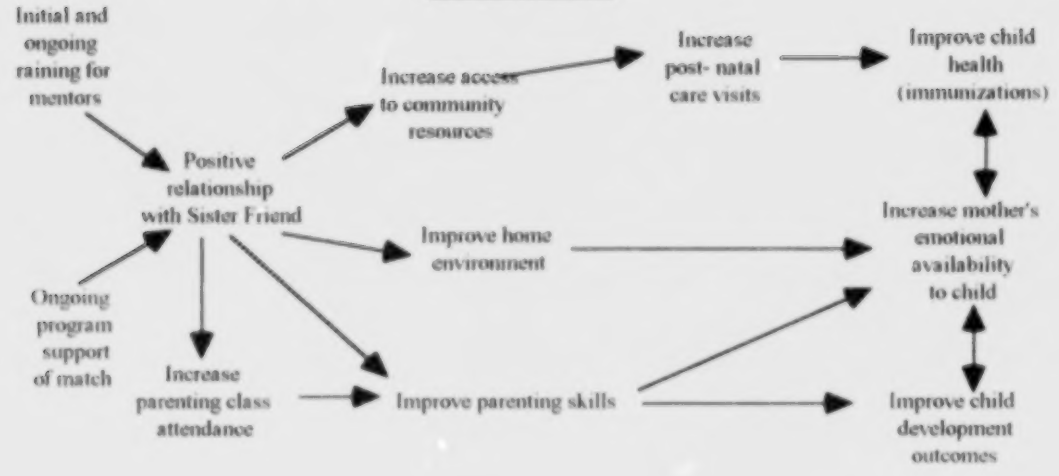
"1. Help the mentor to take care of herself through training and in-services in the areas of stress reduction, limit setting, support vs. co-dependency, assertive communication, appreciating and celebrating differences in people.
2. Provide client with emotional support and encouragement. Contact client weekly, expressing concern and offering a listening ear, sharing information in the spirit of empowerment rather than giving advice. For example, perhaps invite her out for coffee.
3. Provide the client with practical assistance. Be familiar with the local resources such as transportation and occasionally able to offer rides. Know about other resources such as housing, Greater Avenues for Independence (GAIN), employment counseling, battered women and resource shelters.
4. Facilitate prenatal and continuing health care for client. Know where client can obtain prenatal and other health care and ask her if she is doing so. Use the forms in the volunteer manual for reporting prenatal care. Know about the psychological services available.
5. Facilitate prenatal and continuing health care for child. Know about the Child Health and Disability Prevention (CHDP) program and other resources and ask client if she is using them. Be familiar with child care services. Be familiar with normal child development so you can notice problems and offer resources. Know how perinatal drug use can affect an infant so you will know how to help.
6. Facilitate drug-free deliveries. Know about drug treatment in Yolo County. Know the danger signs of relapse and what action to take to prevent or deal with relapse.
7. Promote healthy, happy parent-child relationships. Use the resources offered through [other community resources]. Know about local recreational activities that are low or no cost such as library story hours, mothers' support groups or classes such as massaging newborns, parenting classes and other resources listed in such publications as the Parents' Corner. Get on the mailing lists for local parks and recreation newsletters."

Sister Friend works to match volunteer mentors with clients from their own community. Program mentors are asked to commit two hours per week for one year. They are encouraged to participate in monthly support groups that provide on-going training and an opportunity to interact with other sister friend mentors. The volunteer sister friend (mentor) is to help the teen mother access community resources, attend parenting classes, help keep prenatal care appointments, help her understand what the doctor or nurse said, find transportation, have weekly contact, listen to her, and be her friend and advocate through emotional support and encouragement. The sister friend volunteer is also required to maintain records of weekly visits, medical visits or other appointments and attend

monthly support group meetings and in-service trainings facilitated by an experienced counselor. In addition, the volunteer is requested to attend special gatherings and celebrations for the teen mothers. As of January, 1996, Sister Friend added parenting classes to the program and the sister friend pairs are encouraged to attend these classes together. Parent education classes, attended by both the volunteer and the adolescent mother, provide a forum for discussing child rearing concerns and child development. They aim to foster the development of problem solving skills and provide additional support for the young mother. Program administrators hypothesize that the messages in these classes are reinforced through the pairs' discussions and through their first hand experience with a supportive mentoring relationship.

The following model shows the components of the Sister Friend Program and diagrams the hypothesized relationship between those program components and outcomes for the teenage mother and her child. Such a model provides a framework for addressing evaluation questions, guides the research design, aids in interpreting the results, links research with intervention and can inform program practice (Lipsey, 1993).

Figure 1


Initial and ongoing raining for mentors
Positive relationship with Sister Friend
Increase access to community resources
Increase post- natal care visits
Improve child health (immunizations)
Improve home environment
Increase mother's emotional availability to child
Ongoing program support of match
Increase parenting class attendance
Improve parenting skills
Improve child development outcomes

In Sum

An evaluation of the Sister Friend program can enhance our understanding of intervention effects beyond the goals of moving these mothers off of welfare. Sister Friend is similar to the Big Brother/Sister mentor program in many respects. They share a philosophy that defines the mentor as a friend that supports the youth in his/her endeavors, rather than a teacher or preacher and they have similar infrastructures and program guidelines. Yet, Sister Friend is designed specifically to ameliorate some of the social, cognitive and biological risks associated with adolescent motherhood. This program provides a unique opportunity to examine its effectiveness in improving outcomes for both adolescent mothers and their children. In this process, it can inform program practices and support services for adolescent mothers and their infants.

Objectives of Current Study

OBJECTIVE I. – Evaluation of Program Outcomes

The principal aim of this research is to determine whether participation in the Sister Friend Program can make a tangible difference in reducing risk factors among adolescent mothers and their offspring. It is hypothesized that Sister Friend Program will be able to provide teen mothers with a supportive mentoring relationship which can help teen mothers adapt to the challenges of motherhood by improving parenting class attendance, improving maternal sensitivity to infants, and improving the health and developmental status of their offspring. The following are the specific hypothesized outcomes:

Hypothesis 1: Adolescent mothers who participated in the Sister Friend Program will report more perceived social support at posttest than mothers in the comparison group who were not enrolled in the Sister Friend Program.

Hypothesis 2: Adolescent mothers participating in the Sister Friend Program will attend more parenting classes than mothers in the comparison group who were not enrolled in the Sister Friend Program.

Hypothesis 3: Adolescent mothers who participated in the Sister Friend Program will show greater gains on the HOME inventory from pre to post test than mothers in the comparison group who were not enrolled in the Sister Friend Program.

Hypothesis 4: The infants of adolescent mothers who participated in the Sister Friend Program will have a higher percentage of on-time immunizations than the infants of mothers in the comparison group.

Hypothesis 5: The infants of adolescent mothers who participated in the Sister Friend Program will have fewer developmental delays on the Revised Denver

Developmental Screening Test (RDDST) at post test than the infants of mothers in the comparison group.

OBJECTIVE II. -- Evaluation of Program Implementation

The second aim of this study was to document how the Sister Friend Program was implemented. This type of data provides information about how faithfully and how effectively a program was actually implemented. Gathering this type of data is critical to interpreting the outcome evaluation and for improving program practices.

Chapter III. Methodology

Design

The research plan for this study was developed with support from the executive director of the Sister Friend program, Sister Friend staff, Director of Nurses at the Yolo County Department of Public Health and Cal Learn Supervisor at the Yolo County Department of Social Services. Because it was not possible to randomly assign adolescent mothers to a control group and an experimental group, this study utilizes a quasi-experimental design. Adolescent mothers who were participating in both Sister Friend and Cal Learn were compared with a sample of Cal Learn-only participants. Cal Learn was chosen as the comparison group for two reasons. First of all, it is a mandatory program for low-income adolescent mothers in California who do not have a high school diploma or GED. If adolescent mothers do not enroll in Cal Learn, they are ineligible for government cash assistance. As a result, participants in the Sister-Friend program also receive Cal Learn services[12]. Secondly, its underlying program philosophy provides a nice contrast with that of the Sister Friend Program. Under Cal Learn, financial rewards and punishments are presumed to motivate behavior where as the Sister Friend assumes that experiences with a supportive relationship is a primary component for change.

This study uses a pre-test, post-test design to compare the two groups on the following measures: social support, the home environment, parenting behavior and child development outcomes. Pretest data were collected during home visits with Sister Friend participants after they enrolled in the program and posttest data were collected six months later. Assessments of Cal Learn-only participants were alternately scheduled with Sister

---

[12] Cal Learn can pay for child care, transportation and some school related costs to help the teen attend school

Friend participants. The order of the post-test data collection was kept consistent with the pre-tests. The following is a diagram of the research design:

	First Observation	Treatment	Second Observation
Sister Friend	O_1	X	O_2
Comparison Group	O_1		O_2

A post-test only design was used for infant and toddler immunizations and parenting class attendance since these records did not exist prior to the beginning of the program.

Sister Friend	X	O_2
Comparison Group		O_2

Sample

All individuals were selected on their willingness to participate. In order to be eligible to participate, adolescent mothers had to be between the ages of 14 and 19 at the time of the pretest, primaparous, and had to have incomes that met the Cal Learn eligibility criteria[13], and enter Cal Learn no earlier than January 1997. All infants had to be born free of complications and be between the ages of 1 and 23 months at the time of the pretest. Participants in the Sister Friend group had to be matched with a mentor between November 1997 and March 1998 (most were paired between December 1997 and March 1998). Using this criterion, 17 adolescent mothers participating in the Sister Friend Program were eligible to participate and 20 adolescent mothers participating in Cal Learn-only were selected to participate.

[13] Two of the mothers, one from each group were of very low income, but were not receiving Cal Learn services because they did not have legal immigration status.

Mann Whitney statistical analysis indicate that there were no statistically significant differences between the two groups on maternal age, paternal age, living arrangement, age of child and weeks gestation at birth (see Table 1). Although not statistically significant, it should be noted that the infants in the Cal Learn-only group were, on average, three months older than the infants in the Sister Friend group. The mean age of infants in the Cal Learn only group at pre-test was 10.01 months (range 3.0 to 22.25) and the mean age of infants in the Sister Friend group was 7.76 months (range 1.0 to 18.50).

There were no statistically significant difference between the two groups on all of the pre-test measures (see table 2). Although differences did not reach significance at $p \leq .05$, adolescent mothers in the Sister Friend group tended to have higher total HOME pre-test scores than those in the comparison group, (mean scores were 20.82 vs.18.85 respectively), p=.10. The infants in the Sister Friend group tended to have fewer delays in the fine motor domain than those in the comparison group. The mean number of delays for infants in the Sister Friend group were .41 (SD.6) and 1.0 for the comparison group (SD.1), p=.09.

Table 1: Demographic Variables: Sister Friend and Cal Learn-only participants

Variable	Sister Friend N=17		Cal Learn N=20		p-value
	Mean	SD	Mean	SD	
Maternal age	17.70	1.19	17.21	1.32	.43
Paternal age	20.76	4.40	20.32	3.59	.80
Live with parent	1.41	.51	1.10	.31	.11
Child age(in months)	7.76	5.57	10.01	6.49	.27
Weeks gestation at birth	39.94	.56	39.70	1.17	.64

Table 2: Pre-test measures: Sister Friend and Cal Learn-only participants

MEASURE	Sister Friend N=17		Cal Learn N=20		
	Mean	SD	Mean	SD	p-value
NORBECK Social Support					
Number in Support Network	6.1	3.1	5.8	2.5	.87
Affect Support	54.8	24.5	50.3	22.0	.48
Affirm Support	49.7	21.6	46.3	20.2	.50
Contact	25.2	11.9	23.3	9.1	.62
Long Term Support	23.8	11.9	22.4	22.4	.60
Short Term Support	27.3	13.4	21.0	8.2	.15
TOTAL	155.5	69.9	139.9	58.0	.44
DENVER II					
Fine Motor	.41	.62	1.0	1.0	.10
Gross Motor	.12	.33	.40	.75	.44
Gross Motor	.12	.33	.40	.75	.44
Personal Social	.35	.79	.35	.59	.78
Language	.82	1.01	.90	1.07	.87
TOTAL	1.17	1.96	2.65	2.21	.18
HOME Subscales (points possible)					
Responsivity (11)	7.24	1.68	6.40	2.62	.33
Acceptance(7)	4.76	1.82	4.15	1.53	.18
Organization of the Environment (6)	3.12	1.83	3.2	1.44	.99
Learning Materials (9)	3.47	2.27	3.10	1.68	.66
Involvement (5)	.53	.51	.60	.99	.71
Variety (5)	1.53	1.07	1.55	1.05	.96
TOTAL	20.82	4.64	18.85	5.80	.09

Procedures

The evaluation of the Sister Friend Program outcomes proceeded in the following way. Cal Learn staff, Sister Friend teen facilitators and adolescent mothers (who had already been contacted) referred eligible mothers to participate in the study. Adolescent mothers were first contacted either by phone or in a public setting (i.e. the teen parent centers affiliated with West Sacramento and Woodland high schools). As the Sister Friend staff informed me of matches with a mentor, I contacted the adolescent mother to schedule a visit. During each initial contact, adolescent mothers were told who referred

them, the project was briefly described, and they were invited to participate. Only one of the mothers (in the Cal Learn-only group) declined to participate because she did not have the time. Once they agreed to participate, a meeting place and time were arranged. Mothers were asked where they would prefer to meet for the first time. Most often it was at their home, but on a few occasions it was at a public place like the school or teen parent center. During the first visit, the study was explained again and in more detail. The consent form was read to them and they were asked to sign if they agreed to participate. For mothers under age 18, a parent or guardian's signature was required. They were also given the University of California, Davis Research Participant Bill Of Rights. The rest of the visits were conducted in the mothers' homes.

Description of Measures

Norbeck Social Support Questionnaire (NSSQ): The NSSQ (Norbeck, Lindsey & Carrieri, 1981) was selected for a variety of reasons. First, it provides both information about the number of individuals in the support network as well as the quality of support those individuals provide. Second it has moderately high reliability and validity. The NSSQ test-retest reliability for a six-week period ranged from .56 to .88 (Norbeck et al, 1981). Concurrent validity was established with the Cohen and Lazarus Social Support subscales in which emotional support had a moderate correlation (.44 to .56). Third, Rhodes and colleagues have previously used this measure to identify naturally occurring mentors in their research with adolescent mothers (1996).

Home Observation of Measurement of the Early Environment (HOME): The HOME inventory (Bradley & Caldwell, 1968) for families of infants and toddlers, birth to age 3, has been the most extensively utilized inventory to assess the child's home

environment (Gottfried, 1984). This measure is appropriate for children up to three years of age. This scale contains 45 items and yields scores on six subscales: I. emotional and verbal responsivity of mother, II. avoidance of restriction and punishment, III. organization of environment, IV. provision of play materials, V. maternal involvement with child, and VI. opportunities for variety. Internal reliability coefficients average between .72 and .52, indicating moderate to moderately high degrees of homogeneity among items (Gottfried & Gottfried, 1986). Test-retest reliability was based on a study of 91 families who were assessed when their children were aged 6 months, 12 months and 24 months old. The results suggest that it has moderate to high stability ranging between .62-.77 for the total HOME score and .27-.77 for subscales (Boehm, 1985). It should be noted that mean scores on the HOME tended to increases with the child's age in tests on a sample of 174 families from both welfare and nonwelfare backgrounds (Boehm, 1985).

Revised Denver Developmental Screening Test (RDDST): The children's developmental status was assessed with the RDDST (Frankenburg & Dodds, 1990). This assessment tool focuses on four areas of development: gross-motor, fine motor-adaptive, language and personal/social development. On the record form, a bar, which indicates the ages at which 25, 50, 75 and 90 percent of the standardized population can perform the particular test item, is used to assess the child's development in four developmental domains. The RDDST is simple to administer and is a useful screening test for identifying general developmental deviations and is used world-wide.

Its predecessor, the Denver Developmental Screening Test (DDST), was standardized on 1036 Denver children between the ages of two weeks and 6.4 years. The DDST has a high level of inter observer reliability in administration and scoring (tested by four assessors) with agreement between 90 and 100 percent on each of the items. It should be

noted however, that the items with the highest inter-rater reliability coefficients could be scored by mother report (Werner, 1978). The DDST appears to have a high validity. Overall agreement in ratings of normality and abnormality between the DDST and four criterion tests were moderately high (Moriarty, 1978; Frankenburg, Camp & Van Natta, 1971). Agreement between the DDST and the Stanford-Binet was .81. Agreement with the averaged scores on the Revised Yale Developmental Schedule (RYDS) was .78. Agreement with the Cattell Infant Intelligence Scale was .84; and agreement with the average of scores on the Bayley Scales of Infant Development was .74 (Frankenburg et al., 1971). However, the DDST is not as sensitive in detecting delays as the Bayley, Cattell and RYDS (Werner, 1978).

There are several major difference between the RDDST and the DDST. The RDDST has 86% more language items, and 20% fewer parent report items than the DDST. It has a new age scale; a new category of item interpretation to identify milder delays. It also eliminated items from the DDST that were difficult to administer and/or interpret; and includes a child behavior rating scale (Frankenburg, Dodds, Archer, Shapiro & Bresnick, 1992). The reliability and validity of the RDDST remains high. The RDDST was standardized in 1988 and 1989 on 2096 children throughout Colorado (Frankenburg et al., 1992). The average inter-rater and test-retest reliabilities of the RDDST are higher than those of the DDST items. Inter-rater reliability of seventeen examiners who administered the RDDST varied from 92.4% to 98.2% (Frankenburg et al.,1992). For the seven to ten day test-retest reliability (of the same examiner and observer) 54% of the items had 100% agreement, 32% had 90-99% agreement and 39% had 80-89% agreement, 23% had 50-79% agreement and 1% had below 50% agreement. Both are higher than the DDST (Frankenburg et al., 1992). The RDDST is appropriate for detecting children who have

deviations in one or more areas of development (Frankenburg et al., 1992; Harper & Wacker, 1983; Diamond, 1990).

Administration of Pre-Test Measures

During the first home visit, rapport was established with the mothers and their infants. Next, the NSSQ was administered to assess the mothers' perceived social support. The average time to complete the instrument was ten minutes (Norbeck et. al, 1981). The questions were read aloud to each mother and explained as necessary. First, the mother was asked to list each significant person in her life, considering all the persons who provide personal support or who are important to her now. Then, they estimated the quality of various types of support on a 5-point Likert scale. Towards the end of the first visit, I requested their permission to bring a research assistant to the second visit. They were informed that the research assistant would take notes to help capture all of the important information that the mothers were providing. For the pre-test, all but two mothers gave permission. I did not have an assistant join me on one occasion because the school informed me that the mother had been violent. During the second visit, the mothers were asked about their daily routine. During this conversation, the student assistant took notes on the conversation, observable aspects of the home environment and mother-child interactions. At the end of the home visit, the student assistant and I completed the HOME record sheet independently. The results were compared and discrepancies resolved through discussion. Inter observer reliability coefficients on each of the six HOME subscales ranged between .830 and .955 at pre-test and .725 and 1.0 at post-test (see Appendix C). The infants were also assessed using the RDDST. At the end of each pretest visit, the mothers were thanked and given $10 cash in an envelope with a thank you note.

Administration of Post-Test measures:

Approximately three weeks prior to the follow-up assessment the mothers were contacted again to set up a six-month follow-up visit. Virtually all of the participants had moved or had their phones disconnected at least once between pre-tests and post-tests. Contact was reestablished with each of the mothers. All of them agreed to participate in the post-test assessments. Two mothers had moved to Minnesota and I traveled there to conduct their post-test assessments. The same procedures administered in the pretest were repeated in the post-test visits. At the end of each post-test visit, they were thanked and given $15 cash. At the last visit, each mother was given a personalized note along with the financial compensation.

Procedures for obtaining data from client records:

A. Parenting Class Records- The Sister Friend program offers parenting classes in three cities in Yolo County (Woodland, West Sacramento and Davis). These classes are free and open to the community including both Sister Friend and Cal Learn participants. Funders require the Sister Friend program to maintain parenting class attendance records. Records between December 1997 and July 1998 were used for this study. The original sign in sheets were collected and entered on a monthly basis to ensure that attendance was being recorded accurately.

B. Infant/Toddler Immunization Records- Immunization records were examined to assess compliance to the infant and toddler immunization schedule (see Appendix B). Mothers who did not have immunization records available, had no record of

immunizations on file at Cal Learn and did not provide the name of their regular doctor or clinic were assumed to have late or incomplete immunizations.

Evaluation of Program Implementation

The evaluation of the program implementation was based on semi-structured interviews with all of the 17 adolescent mothers participating in the Sister Friend program and 13 of the Sister Friend mentors. Of the four mentors who did not participate, two mentors changed their phone numbers, had no forwarding number and could not be tracked down. The other two mentors would not return phone calls for an interview – all had matches that did not work out.

The adolescent mothers and their mentors were interviewed independently to identify how the Sister Friend program components were fulfilled, how the basic responsibilities of the mentors were met and to gather information about the nature of the relationship between the adolescent mothers and their mentors. The guide for this interview (see Appendix A) is based on the one developed by Public/Private Ventures and used in their program evaluations to understand effective patterns of interactions between mentor and youth pairs (Styles & Morrow, 1992; Sipe, 1996)

Teen mothers participating in Sister Friend were interviewed during the first visit at each pre and post-test assessment periods. They were interviewed at this time so that the research assistants would not be able to determine which program the mother was in. The mentors of the adolescent mothers were contacted by phone and either interviewed over the phone or in-person. The interviews with the Sister Friend mentors were conducted between July 1998 and October 1998. All participants were informed that the purpose of the interview was to learn about their experiences with their mentor and the Sister Friend

program. They were told that the information that they gave would be compiled with information from other interviews to help improve the Sister Friend Program and that their identity would be strictly confidential.

CHAPTER IV. RESULTS

A. Program Outcomes

Hypothesis 1: *Adolescent mothers who participated in the Sister Friend Program will report more perceived social support than mothers in the comparison group who were not enrolled in the Sister Friend Program.*

At the time of the pre-test data collection, the Sister Friend reported that there were 17 adolescent mothers who had been matched with mentors. Of those 17 matches, only 4 had an active match six months later. Social support scores tended to decrease between pre and posttest in both groups. Although there are no statistically significant differences in changes from pre to post tests in the mean scores between the two groups, the decreases in mean social support scores tended to be smaller in the Sister Friend group than the Cal Learn only group (see table 3).

Table 3: Pre-post test changes on the Norbeck Social Support Questionnaire Scales

NSSQ Subscale		Sister Friend N=17		Cal Learn Only N=20		
		Mean	SD	Mean	SD	p-value
Network #	Pre	6.12	3.12	5.80	2.50	
	Post	5.06	2.08	4.60	1.64	
	Δ Change	-1.06		-1.2		.30
Affirmation	Pre	49.65	21.63	46.25	20.19	
	Post	42.06	16.25	36.35	14.34	
	Δ Change	-7.59		-9.9		.83
Affect	Pre	54.82	17.37	50.30	22.04	
	Post	45.76	24.51	38.80	14.30	
	Δ Change	-9.06		-11.5		.69
Long Term Support	Pre	23.76	11.86	22.35	10.15	
	Post	21.82	8.47	19.30	6.27	
	Δ Change	-1.94		-3.05		.26
Short Term Support	Pre	27.29	13.42	20.95	8.22	
	Post	23.00	8.70	19.55	7.13	
	Δ Change	-4.29		-1.4		.31
TOTAL	Pre	155.53	69.85	139.85	58.00	
	Post	132.65	49.66	113.95	40.87	
	Δ Change	-22.88		-25.9		.54

Hypothesis 2: *Adolescent mothers participating in the Sister Friend Program will attend more parenting classes than mothers in the comparison group who were not enrolled in the Sister Friend Program.*

The Sister Friend program offers parenting classes to adolescent mothers throughout the community. Adolescent mothers receive a graduation certificate upon completing three parenting class sessions. Sister Friend participants had significantly better parenting class attendance than the comparison group, Mann-Whitney, p=.002. [14] The mean attendance for the Sister Friend group was 3.06 (SD 2.54) and .85 (SD 1.93) for the comparison group. While thirteen of the seventeen mothers in the Sister Friend Program attended at least one parenting class (range 1 to 8 classes), only four mothers in the Cal Learn-only group attended parenting classes. Among those who attended the parenting classes, virtually everyone enjoyed them. Adolescent mothers liked the teacher. They felt that she was caring and supportive. They also appreciated free on-site child care and food. Some mothers reported that they liked learning about their child and hearing what other parents were experiencing.

> I like listening to how other kids are and comparing them with mine. I liked the child care.—Adolescent mother.

> I went through the parenting classes with my sister friend. I got a certificate for going three times. I wanted to learn how to live better, how to be a better parent. – Adolescent mother

> The parenting classes are good. Beth brings food. They say what the issue for the day is and lay it out and you can bring your baby. The classes are for us not for them. She shares her own experiences 'this is who I am, this is my life'. Her son attended. It's really for us and is about issues that are common for us. – Adolescent mother

[14] Because the distribution of attendance scores had a skewed distribution, the Mann Whitney statistical test is more appropriate than a t-test.

The mentors who attended the parenting classes liked them primarily because it gave them a focused activity that they could share with their sister friend. In general they felt that during the parenting classes, they met with their sister friend more frequently than when the classes were not in session.

> We got real close during the parenting classes. We went to them faithfully. I told her, I need to know that you're committed to this because I'm committing to you. And she did...I was able to set up meetings with her at least once a month when we had the parenting class, it gave us a focus. -- Mentor

> When the parenting classes were going on, we'd meet every other week. -- Mentor

> We attended almost every parenting class together. I would like to see her more often, the past few months have been very difficult for me. –Mentor

> I haven't seen my mentor since the last parenting class. I feel uncomfortable calling her at her house. – Adolescent mother

Although both mentors and the adolescent mothers found the classes useful and enjoyable, they felt uncomfortable attending parenting classes with older women in the community who were recovering from substance abuse.

> I went to the one in Woodland and the one on B St. in Davis. They have a really nice teacher, they gave out little gifts and had food, candy and tea. The only thing I didn't like was at the one in Woodland. There were a lot of ghetto mom's there. A lot trying to get their kids back. They'd start out talking about how their week was good or how they're trying to get off drugs. -- Adolescent mother

> I loved the parenting classes! Except, we weren't the only ones there. There were a lot of other moms there with problems. There were a lot of addicts and they need to be in a different class. It was like AA [alcoholics anonymous] it was way too much and hard to listen to. I was proud for them, but it was too hard. --Adolescent mother

> We went to a parenting class once together. She didn't like it because it was for folks in recovery. -- Mentor

> The parenting classes are real good. The only problem is there were four mothers who came who had children in foster care. The teen moms and the older, drug moms attend the classes together. -- Mentor

Hypothesis 3: *Adolescent mothers who participated in the Sister Friend Program will show greater gains on the HOME inventory from pre to post than mothers in the comparison group who were not enrolled in the Sister Friend Program.*

There were significant improvements for *both* groups between pre and post tests on the Total HOME scores, $F(1, 16.368)$, $p<.001$; on the Maternal Responsivity subscale, $F(1,15.703)$, $p<.001$; IV; and on the Learning Materials subscale, $F(1, 4.977)$, $p=.032$. However, adolescent mothers who participated in Sister Friend, showed greater gains in mean scores from pre to post test on the Organization of the Environment subscale of the HOME, $p=.042$ compared to mothers in the Cal Learn-only group. Participation in the Sister Friend Program was also associated with higher total HOME scores at the time of post test, $p=.080$ when compared to the Cal Learn-only group (see table 4).

Table 4: Pre-post test changes on the HOME inventory

HOME subscales		Sister Friend N=17		Cal Learn Only N=20		
		Mean	SD	Mean	SD	p-value
I Maternal Responsivity	Pre	7.24	1.68	11.00	2.62	
	Post	8.41	2.06	7.60	2.06	.23
	Δ Change	+1.17	1.47	-0.34	2.07	
II. Acceptance	Pre	4.76	1.82	4.15	1.53	
	Post	4.59	1.58	4.10	1.21	.16
	Δ Change	-0.17	1.70	-0.05	1.43	
III. Organization of the environment	Pre	3.12	1.83	3.20	1.44	
	Post	3.94	1.60	2.90	1.52	.03
	Δ Change	+0.82	1.70	-0.3	1.72	
IV. Learning materials	Pre	3.47	2.27	3.10	1.68	
	Post	5.06	1.75	4.05	1.70	.12
	Δ Change	1.59	1.73	+0.95	1.96	
V. Involvement	Pre	.53	.51	.60	.99	
	Post	.88	.86	1.20	1.28	.62
	Δ Change	+0.35	.86	+0.06	1.57	
VI. Variety	Pre	1.53	1.07	1.55	1.05	
	Post	2.29	1.31	1.75	1.16	.23
	Δ Change	+0.76	1.75	+.20	1.54	
TOTAL	Pre	20.82	4.64	18.85	5.80	
	Post	25.18	5.55	21.60	5.74	.08
	Δ Change	+4.36	4.97	+2.75	5.6	

Hypothesis 4: *The infants of adolescent mothers who participated in the Sister Friend Program will have a higher percentage of on-time immunizations than the infants of mothers in the comparison group.*

Children of adolescent mothers participating in the Sister Friend program had significantly more of their immunizations completed on time than those in the comparison group. Mann Whitney, p=.045. On average children in the Sister Friend group had 67% of their immunizations on time (SD=.34) while those in the comparison group averaged 42% (SD=.35).

Hypothesis 5: *The infants of adolescent mothers who participated in the Sister Friend Program will have fewer developmental delays on the Revised Denver Developmental Screening Test (RDDST) at post test than the infants of mothers in the comparison group.*

The children of adolescent mothers participating in the Sister Friend Program had significantly fewer developmental delays in the personal social domain at the time of the post test than the comparison group, Mann Whitney, p=.03 (see table 5). Infants of the adolescent mothers in the Sister Friend group averaged .006 delays on this subscale while infants of mothers in the Cal Learn-only group averaged .4 delays.

Table 5: Pre-post test changes on the Revised Denver Developmental Screening Test

RDDST		Sister Friend N=17		Cal Learn Only N=20		
subscale		Mean	SD	Mean	SD	p-value
Personal/Social	Pre	.35	.79	.35	.59	
	Post	.01	.24	.40	.60	.03
	Δ Change	- .34		+ .05		
Language	Pre	.82	1.01	.90	1.07	
	Post	.88	.99	.50	.83	.20
	Δ Change	+ .06		- .40		
Gross Motor	Pre	.12	.33	.40	.75	
	Post	.06	.24	.20	.41	.22
	Δ Change	-0.1		- .2		
Fine Motor	Pre	.41	.62	1.00	1.03	
	Post	.24	.56	.35	.67	.58
	Δ Change	- .17		- .65		
TOTAL Scores	Pre	1.71	1.96	2.65	2.21	
	Post	1.24	1.39	1.45	1.32	.52
	Δ Change	- .47		-1.2		

Note: negative changes in scores from pre to post test indicate fewer developmental delays, while positive scores indicate increases in the number of developmental delays.

Summary of Outcomes

In spite of a small sample, this study found small but statistically significant differences in outcomes for the adolescent mothers and their infants who participated in Sister Friend when compared to the mothers and infants in the Cal Learn-only group. Four out of the original five hypotheses were verified. Adolescent mothers in the Sister Friend Program were more likely to attend parenting classes, had higher total HOME scores at post test, and showed greater improvement in scores on the Organization of the Environment subscale of the HOME than mothers in the comparison group. The infants of mothers in the Sister Friend group had higher percentages of complete and on-time immunizations and fewer delays in the personal-social domain of the RDDST than infants in the comparison group.

B. Barriers to Program Implementation

The primary goal of the Sister Friend Program is to provide pregnant and parenting teens with a supportive mentor relationship. During the course of this evaluation, the program faced multiple challenges in providing adolescent mothers with a supportive mentor relationship. Of the original sample of the 17 adolescent mothers matched with a mentor, only four of these adolescent mothers had a mentor at the time of the six-month follow-up. Although each pair has a unique relationship, they experienced similar challenges. Understanding why some relationships failed and some succeeded is critical to strengthening the Sister Friend program. The program implementation evaluation begins with the basics: recruitment of mentors and a description of these mentors. Next it describes the process of how adolescent mothers are connected with the Sister Friend Program (this is referred to as teen outreach). It then examines the mentor interview process, the mentor orientation/training and the initial meeting between the adolescent mother and her mentor. It concludes with the activities related to the ongoing support of mentor relationships.

Mentor Recruitment

The first barrier to matching a teen mother with a mentor was the recruitment of mentors. The Sister Friend Program faced tremendous challenges in recruiting volunteers from the community who could make a commitment to the adolescent mothers. According to two of the Sister Friend staff, the primary recruitment method of volunteers was through the local newspapers. This recruitment method was not adequate. Only one mentor got involved because of an advertisement placed in the *Davis Enterprise*. The goal

of having 20 adolescent mothers matched with a mentor by February 1998 was not achieved.

Because of the shortage of mentors at the beginning of this study, it was suggested that mentors also be recruited from the University of California, Davis. Specifically, announcements were made in the Human Development Internship Office, courses in human development and psychology, and the campus-wide internship and career center. Program staff reported that they preferred mentors from the community over U.C. Davis student mentors for several reasons. First, community mentors tend to live closer to the adolescent mothers (most of the adolescent mothers live in Woodland and West Sacramento while students tend to live in Davis). Second, program staff felt that community mentors might be more likely to make a longer time commitment than students who sometimes prefer a one or two quarter commitment. Third, Sister Friend Staff felt that in the past, some students lacked maturity and life experience to adequately relate to the adolescent mothers. Because of a severe volunteer shortage, they agreed to recruit from the University. Thirteen of the 17 mentors were available for interview.

Characteristics of the Mentors

All of the mentors were female. Seven of the mentors came from the communities in which the adolescent mothers lived. Mentors from the community were older, on average, than student mentors. They were between the ages of 35 and 55 years. All but two of these community mentors were actively involved in other types of community service. One was the athletic director at a middle school, two others were involved with their church and are volunteer mentors for other youth. One mentor volunteered at the high school and another mentor worked for the Sister Friend program as a teen facilitator. The other six

mentors heard about the Sister Friend program through the University of California, Davis (primarily through announcements in human development and psychology classes). These mentors were between the ages of 20 and 30 years old. Of the four mentors who were active in the Sister Friend Program throughout the six-month study period, two were U.C. Davis students and two were from the adolescent mothers' community.

All of the volunteers expressed a variety of reasons for wanting to become a mentor but the central reason was a desire to provide support to an adolescent mother. In addition, one volunteered to be a mentor because she had a child when she was a teenager and had no social support. Another volunteer was looking for a playmate for her own child. Because of a small sample size, it is not possible to determine the qualities that make for the best mentors. However, these interviews do support findings from previous research that examined the qualities of successful and unsuccessful mentor relationships (Stiles & Morrow, 1992; Sipe, 1996). In particular, this study found that adolescent mothers liked mentors who were caring, empathetic, respectful of their views and supportive. In these relationships, they reported a sense of mutual trust and respect. Adolescent mothers also liked that their mentor gave them opportunities to get them out of their house to do fun things together. On the other hand, relationships experienced problems when adolescent mothers felt that their mentor was judgmental, trying to instill values that were different from their own, and when the match had difficulty meeting on a regular basis. The following excerpts from interviews with adolescent mothers, highlight the characteristics of what they liked and did not like about their mentors.

What adolescent mothers liked about their mentors:

> She sat through my problems, she really listened to me. I had so many problems and was under a lot of pressure. I wanted to be a good mom, I didn't want my boyfriend to see me or the baby anymore because he was in

gangs, the baby would get sick, the baby would cry and I wouldn't know what to do. I hit rock bottom depression. I could just talk to her [my mentor]. My mom would be really negative. My mentor was more positive. We went to the mall, parenting class, meetings with my social worker and to the doctor… I liked it when we could figure things out together. She didn't just tell me what to do.

I would recommend the Sister Friend Program to a lot of teen moms. I am always at home. They get you out doing things. It's like the Big Brother Big Sister program, it just has a different name.

My mentor is really nice! She's going to college and wants to be an OBGYN. We go to the store, out to eat and to movies. We both decide what we want to do, but I don't really care what we do, I just like to get out. Over the summer we went to her apartment to go swimming. Sometimes we run out of ideas of what we want to do. We can't spend money all the time, so we went to the park to feed the ducks. Another time we took the baby to the zoo. Once we went to Downtown Sacramento so my daughter could play on the jungle gym – she had fun! She really likes my baby. We have fun and get along really good. She's my only friend. She's real nice.

We went to a fashion show together and became good friends.

She's [the mentor] a real sweetheart. We would go to the parenting classes together and then go out for ice cream. She got us gifts for Christmas and for my baby's first birthday. I wish I could see her more. [How often would you like to see her?] Once a month.

She's [the mentor] is good to talk to. She's understanding. If I am stressed, she's there for me. I really like her a lot.

We face a lot of discrimination with our language barriers. I feel like she [my mentor] is the only one who can help us. I am so grateful because she helps me so much. I feel like she respects me… I can confide in her. I feel free to speak to her about personal things. She makes me feel comfortable.

My mentor is really nice. She comes all the way from Davis to take me to my appointments. She doesn't even get paid to do it! I went to her house once. She helped my boyfriend get his green card. She's really supportive.

What adolescent mothers did not like about their mentors:

It's like she's doing this to make herself feel better and I am a charity case. After i heard from you, I decided to call her. I called her last night and told her about my new job. She said 'I am so proud of you! We'll go celebrate.' She made too much of a big deal about it. Then she asked, in a round about

way to find out, how much I was making. She said 'Oh, so you're getting money from that and...' I cut her off. I told her I got cut off welfare. Then she said, 'Oh, that must make you feel so good'. She doesn't understand. I told her that I was sick and missed one day of work but that my boss really understood and was nice about it. She then said, 'but you *know A...*'. She said it in a way, like she was talking down to me. It's not her fault though, she was born with a silver spoon in her mouth.

She's too noisy. It started getting on my nerves. She'll call places and enroll me in things. Then she'll call back to check and see if I have called.

I was depressed that the baby wouldn't breastfeed. My mentor forced the baby on me. She told me that, 'he's lazy and doesn't want to work for food.' We argued for about a half an hour. My dad stepped in and told her to give him the baby. I was looking at her like, 'who are you?' She used to support me, it was like she was a different person.

Sometimes I feel like I can't trust her. She sometimes says that she is going to come over but doesn't. She said she would come on Monday, today is Friday and she hasn't come or called. She says that she is going to bring me something but never brought it. She forgot. She said she heard about a job that I could apply for. I asked her to bring me the application, she then gave excuses about why she didn't get the application. She said she would help my husband with something but didn't follow through. Sometimes I feel selfish because I need her help. She offers help and I think I can count on it, but she doesn't come through and that hurts.

I really wanted her to get to know me. I wanted to do stuff together and bring my family (boyfriend and baby). She didn't want my family to come along. We were invited to go to Great America. I got a baby-sitter and everything. I got upset because they said my boyfriend couldn't go. It would be unfair for me to go without him. They need to understand that we like to do things as a couple. At first I didn't know she didn't like having my boyfriend around. She told me it was o.k. for him to come when I asked her. I hadn't heard from her in a long time and someone from the Sister Friend Program told me that they reassigned her to another teen mom. They told me that she didn't like having my boyfriend there when we went places and that she wanted a one-on-one relationship. This was the first I heard about this. It hurt, I looked at her like a friend.

We used to see each other every night. She's busy in sports and never kept up with it. I never did either. She did invite me on a raft trip, but I never contacted her. I feel more comfortable with my own friends.

I went through three Sister Friends – two were from Davis, one was from Winters. They were all older than me. I didn't feel comfortable with them.

Teen Outreach

The primary method of recruiting pregnant or parenting adolescent mothers for the Sister Friend program is through the teen parent centers in West Sacramento, Woodland and Davis and at the continuation high school in West Sacramento. Teen outreach workers go to the teen parent centers once a week. During these sessions, they conduct arts and crafts activities with the adolescent mothers for approximately 1-2 hours.[15] Program records identifying the referral source were incomplete so it was not possible to determine who referred the adolescent mother to the program. However, interviews with program staff and informal discussions from colleagues working in the field indicate that a variety of agencies refer adolescent mothers to the Sister Friend Program, including the community health clinics, Cal Learn, school counselors, and the Special Supplemental Nutrition Program for Women Infants and Children (WIC).

In sum, there are many more teens who want to have a mentor than there are volunteers. Recruiting volunteers is a critical issue for the ultimate success of this program.

The interview process for mentors

Sister Friend policy states that all potential mentors are to be interviewed by a Sister Friend staff member prior to being matched with an adolescent mother. The staff had different degrees of professional training. Of the three staff members, one held a

[15] I observed 9 of these sessions – 2 at the Woodland TPC, 6 at the W. Sacramento TPC and 1 at the West Sacramento continuation school. I did not observe the Winters TPC activities because there were no matches in Winters at the time of the study and there was only one teen in the Sister Friend Program participating at the Davis TPC.

bachelor's degree and had experience with drug abuse treatment, one was in the process of completing her bachelors of science degree in human development and one had graduated from community college and had extensive volunteer and community service. None of the staff were licensed social or public health workers. The purpose of the interview process is to gather information about the potential mentor (to determine why they are interested in becoming a mentor, their time availability, etc.). Based on the interview, application form, and background check, volunteers are screened. If they pass all of these three components, they are then matched with an adolescent mother. Interviews with the mentors indicate that this important step was missed in several of the matches. In fact, only four of the 13 mentors in this study were formally interviewed prior to being matched. Those who were interviewed indicated that the goals of the interview process were not achieved:

> [Were you interviewed?]Yes. [Tell me about the interview.] I did most of the talking. I guess that's good if you want someone to know about you. But it was very informal and disorganized from the minute I walked in. It set the tone. She asked me about my life, my future plans, why I wanted to do it. It became very informal and then she began talking about her life. It was almost like I was the counselor.

> After the training, I had an interview. [Tell me about the interview process] I told them that I would prefer a mom from Davis because that is where I live. She said that they didn't have many [adolescent mothers] in Davis. I said that Woodland would be o.k. because I have a car. So they gave me her name and number and told me to call her. That was it.

In sum, the interview process for potential mentors needs to be formalized. It should have specific guidelines that are consistently applied across interviewers and potential mentors.

The Initial Mentor Orientation and Training

In addition to the interview, mentors are required to participate in five hours of training. Nine of the mentors interviewed attended a mentor training/orientation. The following findings are based on the interviews with those mentors who attended the training/orientation.

In general, mentors seemed to enjoy the trainings and felt that the topics covered were interesting. However, few mentors reported that the trainings helped prepare them to work specifically with adolescent mothers. Mentors expressed a strong need for mentor trainings focused on working with adolescent mothers and their children. The Sister Friend program does occasionally offer trainings focused on issues pertaining to adolescent mothers. However, most of the mentors did not attend trainings with this focus (primarily because it was not offered when they had signed up to be a mentor). Mentors provided the following information about the trainings/orientation:

> I went to a Saturday workshop in August or September [1997]. I brought my baby because she could come. Yolo Connections covered all of their projects each project gave a 15 minute presentation. Then there was a general mentor training and finger print. [What did you get out of the training?] I remember thinking, "I know all this" it was too broad. They tried to cover too much and the focus was on mentoring a school age child so I tuned-out. The food was good. We had pizza and salad for lunch and someone watched my baby so I could eat. I enjoyed chatting with people.
>
> I went to an all day training in a church at Davis. It was too much about how the girls can lock into the system. I have to ask, at what point do you put in the effort? I don't want to rock a 16 year old, when she needs to get responsible. The system perpetuates itself because it is so easy to live with in it.
>
> The first day of training they went over the program and saw a video of a match. It wasn't focused on adolescent issues.
>
> [Did you go to any orientation or trainings?] Yeah. They were decent. Not bad not good, just o.k. They did give some good advice. [Can you tell me a little about them?] The very first was very general. It covered all types of

> mentoring. Some situations that they covered didn't apply to teens. They talked in general and then got too specific with the example – it was for mentoring in a school-based program.
>
> [Did the trainings help prepare you to be a mentor or more specifically a mentor to an adolescent mother?] The trainings were great, but everyone's situation is different. Once you're paired up, you're on your own. I think everything I learned went out the door when we first met. Also, they addressed really broad topics. There's a lot of different mentor programs mixed together. Not all mentors have teen moms. [Did they touch on any teen issues?] They tried to target us a little, but not much.
>
> [What did you think about the mentor training?] It was really great! They covered topics on substance abuse, domestic violence, and child abuse.
>
> The cultural aspect was also missing. My teen was Hispanic – our issues were culturally based. That's why she dropped out.

One mentor did report that she went to a one-day training with an emphasis on working with adolescent mothers. She reported that this specific training was more useful for her relationship:

> I went to a 3-day training--2 Saturdays in April and 1 Saturday in May. The one in May was really good. It was focused only on the Sister Friend program. They gave us a binder with good resources. Several agencies talked about issues.[What kind of issues did they discuss?] Domestic violence, drug addiction, teen issues like social issues, drugs, peer-pressure, why teens get pregnant, family issues around adolescence –their transition and shift towards independence. They basically were trying to prepare us for anything that came up with our Sister Friend. They also talked about how to encourage positive discipline and we also explored gender equity and roles in society and how/why teens have such a hard time to nurture and take care of others. [What did you think about the coverage of teen issues?] They should have had some teens there to share their perspective. [Was it enough time for the training?] A whole day for teen issues was enough.
>
> [How do you feel the trainings prepared you for being a big sister?] They? Not at all. I was prepared because of who I am, that put me in a better spot. They said they did screening, but I don't know for what.

Although program staff recognizes the importance of helping mentors set and maintain personal boundaries, this remains a significant challenge for mentors. Sister Friend staff

reported that they make the following efforts to help mentors with establishing personal boundaries:

> We suggest that when you meet your mentee, it should be in a public place for at least the first six months to a year. We explain that the mentor is not a person for groceries or money or to give resources to the mentee. We want to avoid the message that this is a 'free-ride'. We tell the mentees that if they need information they can call their mentor, if they need a nonjudgmental friend, call their mentor. Mentors are not to give any medical advice. During the mentor interview we talk about 'What our are boundaries'. I almost lost a mentor over this issue.

Mentors felt that they needed more of this type of assistance in setting and maintaining personal boundaries. This could be more consistently covered at the orientation/trainings but also needs to be incorporated with ongoing support of the match. It appears that this information is not coming through at all of the trainings. When it is discussed, mentors felt that they would like more detail on how to address specific and common challenges.

> [What is the biggest challenge for you as a mentor?] Boundaries.
>
> [Were there topics on boundary issues?] No.
>
> They did cover some boundary issues. Like when the person who you are mentoring asks for money. They also talked about physical space and emotional space. [What did they mean by physical and emotional space?] With physical space – be aware of how they gauge how close you can be, when you can pat someone on the shoulder or give a side hug. They stressed how not everyone is like you. With emotional space, they talked about how close you are going to be. This was very difficult to do in a large training session. It is such an important issue for the teen moms. When are you there for them, and how comfortable are you with that?
>
> They really just brushed over all of the topics. There were a lot of people and not everyone could participate in the hands-on example activities. [As an example of a hands-on activity involving personal boundary issues,] They had folks line up and face each other. Then they had one person walk up to the other one. Then they talked about what made them stop, how they felt… But only some people got to do it. If you don't do it, it's not the same. They just skimmed over this; they could really improve this because you don't really know what to do. You're there to be a friend, but that's not entirely true.--Mentor

The program goals and expectations need further clarification during the trainings.

> The trainings were very fast (they covered a lot in a short time). They gave us a binder. I was expecting someone to sit down with us and talk to us about the program. I was confused about the expectations and process.

> [How well did it prepare you to be a sister friend?] Well, I missed one. But like I said, they were interesting and gave us good information, but not really good in terms of helping to prepare us. I wish they would have talked about what to do when you get together. I also wanted to know to what extent do you meet with her baby too.

Trainings seem to be a good time for mentors and Sister Friend staff to get to know each other.

> [What did you like most about the trainings?] The staff was very supportive. My issues came up and they were very supportive. They had specific training on teen issues such as drug addiction, psychological issues of child abuse and family violence, and general teen issues.

> [What did you think of them?] They were insightful and informative. I was able to ask questions. I did miss one of the trainings. I really wanted to go to it because it was on child abuse and domestic violence. It was a good arena to get together with other mentors. We heard from mentors who had been doing it for a while and we kind of problem solved, helped each other out. I really looked forward to going to the training because I am always looking for ways that I can improve myself.

The Initial meeting between mentors and adolescent mothers

The initial meeting seems to be a critical step in setting up the relationship between the mentor and the adolescent mother. Staff and mentors both reported that it is program policy that the first meeting should consist of the teen outreach specialist, the mentor, and the adolescent mother. This meeting should take place in a neutral setting. Based on interviews with mentors and adolescent mothers, this is rarely accomplished.

Sister Friend staff needs to provide more structure and support for the initial meeting between mentors and adolescent mothers. The following comes from a mentor

who participated in the Spring, 1998 mentor training, but did not actually meet with the adolescent mother that she was matched with until the first of October 1998.

> When I called the adolescent mother who I was matched with, she was surprised. She didn't seem to know anything about the Sister Friend program, that, or she forgot that she had signed up. This really bothered me because I thought it was a volunteer thing – working with someone who wanted a mentor. I had a hard time connecting with her, then she dropped out of the program. Then, it took a really long time before I heard back from the program. I met my new match [adolescent mother] just three weeks ago. The Sister Friend program seemed really unorganized. One staff member quit. The other staff was really confusing. One seemed to be overwhelmed. During this waiting time, I got less motivated. In the beginning, I was so excited! I trained in Spring and hadn't heard anything so I figured well it just didn't work out. So I filled up my time with school and work.
>
> What happened after the trainings, were you interviewed? The interview was interesting. They asked my why I wanted to be a mentor, some of the same questions you asked me. I thought it would take a couple of days, but they matched me right then.

Mentor Support

The Sister Friend Program offers monthly support group meetings for its mentors. Meetings are typically held in the evenings in each of the cities (Davis, Woodland and West Sacramento). Only one of the mentors in this study attended the support groups on a regular basis, and this was the same mentor who worked for the Sister Friend program. The other mentors interviewed felt that support group meetings were a good idea, but they were difficult to fit in with their lives. Most mentors had multiple obligations as parents, students, family members and/or as professionals. As a result, it was difficult for them to find time to attend the meetings. Many felt that it would be helpful for them to get a phone call from Sister Friend staff on a regular basis to inform them about upcoming activities and create opportunities for them to discuss their relationship with their little sister. This finding replicates the finding from the Big Brothers Big Sisters Program. Morrow & Styles (1995) found that initial training provide mentors with important

information about working with youth in general, but that this information was lost over time. Ongoing training and support of the match can help the volunteers understand the youth's behavior and can help volunteers adapt to particular situations they are experiencing. It is important for staff to reinforce that their primary role is be a consistent, supportive adult friend to the youth.

CHAPTER V. DISCUSSION

This evaluation study indicates that adolescent mothers and their infants participating in the Sister Friend Program had better outcomes than those in the Cal Learn-only comparison group. Despite a small sample size (there were 17 mother-infant dyads in the Sister Friend group and 20 in the Cal Learn-only group) and a relatively short study period (six months), four of the five hypotheses were verified. Compared to those in the Cal Learn-only group, adolescent mothers in the Sister Friend Program on average attended more community parenting classes, had significantly higher total HOME scores at post test and showed greater improvements on the Organization of the Environment subscale of the HOME from pre to posttest. The infants of mothers in the Sister Friend Program had a higher percentage of timely and complete immunizations and fewer developmental delays in the personal social domain at posttest than those in the comparison group.

The program implementation evaluation found that there are significant discrepancies between stated program procedures and actual implementation practices. The Sister Friend program experienced significant problems in recruiting, training and retaining volunteer mentors. Only four of the seventeen adolescent mothers had a supportive relationship that lasted throughout this six-month study. These findings demonstrate the need for program implementation evaluations to be conducted along with outcome evaluations. Because so few mothers had a mentor throughout the duration of the study, any positive effects on the mothers and their children cannot be solely linked to one-on-one mentoring. This is not to say that mentoring does not have a positive influence on the lives of adolescent mothers and their children, merely that this study was not able to evaluate the effectiveness of program facilitated mentor relationships.

It is not clear how the Sister Friend made a difference in the lives of these mothers and their infants. It is possible that the adolescent mothers' experiences with the program and/or mentor, even for a brief duration, helped break the isolation that so many of these mothers experienced. This may have been accomplished through the parenting classes, or other program activities, where the connected with other mothers and/or caring adults. It is also possible that this program provides mothers with a sense that they are worthy of having a supportive, caring relationship and that there are caring people in their very own community. The following excerpt from an interview with an adolescent mother who had a mentor for a very short time highlights these potential explanations:

> ... The program started out really great. Over the summer we went on a white water raft trip. We really liked it! [what did you like about it?] It was a new experience. Thrilling! It makes us interested in what the program is doing. I liked meeting new people, learning to work together. You had to trust people you never met. We met nice people and got to learn about other people like the chaperones and drivers. They hooked my boyfriend up with a referral to work. I went on a second trip and got really cold and they cared for me. Someone else got hurt but everyone worked together and paddled up stream to get him. We learned about rocks, folk tales, had lunch. You couldn't beat it!

Implications for Research

Considerations for interpreting the results of this research

There are many strengths to this research design. First, unlike most program evaluations, this study utilized a quasi-experimental design. This design controlled for effects due to maturation. Second, in spite of the fact that an overwhelming majority of mothers had moved and/or had their phones disconnected at least once during the study, pre and posttest measures were collected on 100% of the sample. Tracking mothers required the development of trusting relationships with the adolescent mothers, family

members and professionals. Third, this study included both outcome and program implementation evaluation components.

Despite its strengths, the findings of this study, on a small sample of teenage mothers and their infants, must be interpreted with some caution. Because it was not possible to randomly assign adolescent mothers to a control group, this study did not control for effects due to self-selection. Although efforts were made to select a comparison group equivalent to the Sister Friend group, one cannot distinguish whether the results are due to program effects or to some unmeasurable characteristic of the adolescent mothers who volunteered to participate in the Sister Friend Program. It was also not possible to control for concurrent interventions for adolescent mothers and/or low-income families that may have differed between the two groups (such as intervention efforts through the teen parent centers affiliated with the public high schools, public campaigns to increase infant and toddler immunization awareness, the implementation of a new welfare law, increased efforts of the health clinics to increase contraceptive use, etc.). Mothers in this study reported the types of services that they received, but it was not possible to determine the full-range and quality of those services. In addition, because the pre-test measures are not a component of the Sister Friend Program, they may have had an effect on the respondent's sensitivity to the goals and intents of the various program components such as parenting attitudes, child health and development, etc. Lastly, because there are many components of the Sister Friend program (i.e., one-on-one mentoring; parenting classes; fashion shows, white water raft trips, mother's day picnic; support groups, etc.), it is not clear which of these program components (or combination of components) effect mother and child outcomes.

Implications for future research

This evaluation provides detailed information on Sister Friend Program outcomes and barriers to its implementation. However, several questions emerged that this study could not address. This study found significant program effects, yet, research documenting the effects of program facilitated mentor relationships for at-risk youth is limited and remain virtually non-existent for pregnant and parenting adolescent mothers and their infants. More high quality program evaluations are necessary to understand how program sponsored mentoring effects adolescent mothers and their infants.

Although this study found positive program effects for a six-month study period, research that follows mother-child dyads over a longer time period are needed. Longitudinal research is the best method for answering the following questions: 1) What are the long term consequences for adolescent mothers and their infants who participated in early intervention services such as one-on-one mentoring programs? 2) What happens to adolescent mothers as they transition into adulthood especially when they turn age 18 or graduate from high school and are no longer eligible for program support services with these arbitrary cut-off points? 3) How does the transition into other programs with different categorical funding streams (within and across counties and states) effect maternal and child outcomes? 4) Do mentors have a greater effect on maternal and child outcomes if they are matched with adolescent mothers who are in the early stages of their pregnancy as opposed to after the birth of their child? 5) What are the changing needs for adolescent mothers as they develop? 6) What are the changing needs of the infants of adolescent mothers as they develop? And, 7) how do mentors support the changing needs of adolescent mothers and their infants as mothers transition into adulthood and as infants develop and transition into school?

Future research also needs to inform how best to assess and meet the varied needs of adolescent mothers and their infants. The mothers and infants in this study were a diverse population (in terms of ethnicity, maternal age, community setting, and social support). Understanding how these demographic and contextual variables affect adolescent mothers and their infants remains a critical need. For example, older adolescent mothers may have different needs than younger ones. Previous research has found that as youth get older, especially youth from low-income families, many become disconnected from traditional institutions such as schools, family and community organizations (Sipe & Ma, 1998). Younger adolescent mothers tend to have less knowledge of child development, less realistic expectations for their children, tend to be more controlling and are less verbal with their infants than older adolescent mothers (Fry, 1985). Although the mother-child dyads in this study faced similar challenges, future research needs to inform how best to support their individual needs as both adolescent mothers and their infants develop.

In addition to answering these research questions, future research on mentoring needs to address at least two common problems: 1) mentoring is a poorly defined concept and 2) there is tremendous variability in the scope of mentoring programs (Mecca, 1995). Interviews with directors from 21 New York based mentor programs reveal that mentoring is, "a caring but diffuse intervention, with far-ranging personal, academic and career goals...Program directors use a rudimentary definition of a 'good mentor', which is based largely on their common sense understanding about what leads to success in any good leader, manager, or human service worker." (Flaxman & Ascher, 1993, p.45). With regard to the second problem, future mentor program evaluations need to identify the effectiveness of program components, such as mentor training and support, on their ability

to prepare volunteers for their role as a mentor, improve the quality of mentor relationships and retain mentors.

Lastly, and contrary to what was expected, the adolescent mothers were very willing to participate in this study. When I contacted the mothers, they were pleased that someone, who did not work for the county, was interested in their experiences and trying to improve the system. Although they were told that they would not benefit from any of the changes that might come from the study, they wanted to help me inform programs and policy makers about their experiences.

Implications for Intervention

Need for better program implementation in the Sister Friend program

As Berk and Rossi (1990) note, implementing a program is much more difficult than designing one. The Sister Friend staff faced a variety of challenges in implementing their program. Interviews with mentors, adolescent mothers and program staff provided important information about program components that need to be improved in order to be more effective.

Across most mentoring programs, the number of youth who would like a mentor exceeds the number of available mentors (Sipe, 1996). While acknowledging this problem, there seems to be additional volunteer sources that the Sister Friend Program could tap into. For instance, this study found that University of California, Davis students can be successful mentors. Two of the four relationships that lasted throughout the six-month study period were with mentors from the University of California, Davis. The Sister Friend Program can help student mentors obtain course units and/or internship credit for volunteering. As part of the University's program, students are required to have a faculty

sponsor who can be an additional source of support for the mentor. It is possible that the California State University, Sacramento has a similar program. Surprisingly, none of the volunteers heard about the program through their churches, churches may be another viable source for mentors. Other programs have found the American Association of Retired Persons (AARP) and the Senior Retired Volunteer Program to be helpful in recruiting mentors for local programs (Dubin, 1997; Sipe, 1996).

Once volunteers are recruited, the Sister Friend program needs to ensure that its volunteers are prepared for their role as a mentor. Adequate preparation involves providing information about the program (including the role and responsibilities of mentors), adolescent development, issues that are particularly relevant to adolescent mothers, communication skills, problems that relationships typically encounter, and possible solutions for such problems.

This study also found that the Sister Friend program needs to provide more initial and ongoing support of the match. These types of support activities were virtually non-existent during this study period. Perhaps the staff changes in two of the three Sister Friend teen outreach worker positions contributed to problems in supporting the match. However, the importance of this step cannot be underscored. Previous research has found that in programs who did not regularly contact their volunteer mentors report the most "failed" matches (Sipe, 1996). Staff contact with mentors is associated with better mentor attendance at program activities and better quality mentor relationships (Sipe, 1996). Most of the mentors in this study experienced problems in the early stages of their relationships with their adolescent mothers. Staff support during these initial stages of relationship formation seems to be especially critical.

In addition to improving these existing program components, the Sister Friend Program may want to consider providing an orientation for their adolescent mothers. Currently the Sister Friend program has a mentor orientation and training, but nothing for the adolescent mothers. Tierny & Branch (1992) have reported that orientations for at-risk youth (the potential mentees) can have a positive influence on how they spend time with their mentor. Orientations may also be able to create an opportunity for generating and sharing ideas about specific activities that they might do with their mentors. It can also be a forum to discuss the program, and specific rules.

Need for Supportive Case Managers in Cal Learn

Although this was not an evaluation of the Cal Learn program, this intervention was shared by virtually all of the mothers in this study. All participants were asked open ended, unbiased questions about their experiences in Cal Learn. Similar to mentor relationships, the type of social support that mothers get from Cal Learn case managers is largely dependent on the individual. Although Cal Learn case managers have a tremendous potential to support adolescent mothers, the overwhelming majority of mothers in this study did not view their case manager as supportive. Six mothers who reported that they liked their case manager, even though three of these mothers did not like the Cal Learn program. Nine of the mothers reported neutral feelings for their case manager. As a result, adolescent mothers do not perceive them as a source of support. Unfortunately, many mothers (10) explicitly stated that they did not like and in some cases hated their case manager. These mothers felt that their case managers did not understand their situation, were judgmental, confusing and not supportive. Mothers also perceived that the case managers viewed them as bad parents, who lack knowledge of child development and

basic health and nutritional information. They developed this perception not by what the case managers said, but how they acted. These mothers reported that they are getting bombarded with messages that they are failures, that their children are doomed and that the system that is supposed to provide a safety net, is confusing (changing eligibility, caseworkers, criteria) and punitive (these mothers who are already struggling financially are further economically sanctioned if they are unable to go to school or maintain a "C" average). Rather than being a support to the mother, the mother perceives the individual as someone who is going to further condemn them. Rather than focus on what the mother is doing "wrong", case-managers need to shift their focus to emphasize what the mother is doing right. There are a lot of opportunities to acknowledge this. All of the mothers in this study shared their desire to be a good parent. It can be as simple as pointing out how the infant responds to her mother's voice and building slowly from there. Professionals are missing opportunities to raise mothers' awareness about how their behaviors affect their infants' developments.

Economic Sanctions further reduces the amount of support that Cal Learn provides

The reward and punishment philosophy underlying the Cal Learn program does not seem to be an effective strategy for improving school attendance and academic performance. Three of the mothers who received bonuses reported that they really needed and liked the extra money, but would be going to school and doing well even if they did not get the bonus. They were motivated to attend school primarily to set a good example for their babies. The financial deduction from their checks created additional hardships for these young families who are already living below poverty. Most mothers spontaneously reported that economic sanctions hurt their child because they use the money for diapers,

food, clothes, etc. In some cases they did not have enough money to pay their utilities (no heat in the winter and no phone to make their appointments). None of the mothers said that these financial penalties were motivating them to do better in school. Policies and programs need to be informed that there are other barriers to attending school. It is difficult to justify the use of economic sanctions to motivate young, economically disadvantaged, young mothers go to school -- especially considering the extent to which poverty places children at risk for poor health and negative development outcomes. The following quotes from these mothers are included to reinforce this message.

> The sanctions make me not want to do this. They deduct $50 a month. He's not in school either so they took another $50 out. I spend about $100-250 a month on groceries for the family. Rent is $385 a month. I used to get $538 a month for the three of us, now I get $438. I could barely pay the rent. Then the phone was turned off. Then PG&E was turned off. I got $538 last month, but didn't go to school and report cards are due next month so I will get sanctioned again. [Do you want to go to school?] I am trying to get into Yuba College. But transportation is a major problem [Why Yuba?] High schools don't accept you if you're over 18 unless you are 10 credits away from graduation. I am 40 credits away. Adult ed. is hard because you have to turn in 20 sheets of work to get 5 credits and you have to make 8 credits a quarter so you don't get sanctioned. I ran out of money last month and asked for a food voucher. [Can you tell me what happened?] It was my daughter's first birthday and I bought her a cake. This was the first time I asked for a voucher, and I felt bad for having to ask. When I called, my caseworker, she said that I needed to learn how to budget my money. She didn't believe me that this was the first time I asked for one so she checked my file. She told me to use it responsibly and wrote me a voucher for three days (to buy peanut butter, dry milk, a package of spaghetti, and some stuff I don't need). I will get food stamps in five days. But I am grateful not to be by myself. I don't have family to turn to for help.

> I hate the sanctions. It's hard to go to school and get good grades when you're raising a child. My baby was hospitalized and I had to stay home with her for about three months. I got bad grades and got sanctioned.

> When they take money away, they are really taking away money that I would be spending on my daughter. I use the money to buy her diapers, clothes, shoes, wipes, toilet paper and to wash clothes.

I hate it [Cal Learn] the sanctions make me not want to do this. I would rather work part-time and not get AFDC, but child care costs too much.

I got Cal Learn last month but was cut when my mom got a job at the Casino making $5.25 an hour. I wanted out of Cal Learn anyway. I hated my case manager. Cal Learn is just a bribe to finish school.

Welfare is horrible. I broke up with my boyfriend, was homeless and pregnant. I got a grant for a motel for two weeks, but they wouldn't help me look for housing. I stayed in my mom's r.v. for a little while [she didn't want to stay there because her mom was using drugs]. I started with $302 a month and then got cut to $288, then $220 and then $118. How can I get an apartment on that?! I've never met my Cal Learn case worker. They trade workers all the time. I want a job, maybe at a warehouse where I can make $6 an hour. The money part scares me. I want to finish school and get a job. [Although she has currently dropped out of school, she states:] I want to finish next year, maybe go to night school and then River City College. I want to be a drug and alcohol counselor or maybe have my own hair shop.

The bonus/sanctions make life really hard! I'm almost homeless. With welfare I get $434 a month, but if I don't get good grades I lose $100. Then my kid can't have clothes, diapers or something. Some people don't understand that it is hard to go to school, work and raise a kid, but I'm trying.

Cal Learn is good, but if you don't get credits, you get sanctioned. I got a bonus once for credits. With the $100 I bought diapers and a few new clothes for the baby. When my mom gets her check, it's barely enough to pay the rent then the sanctions make it real hard. I've been sanctioned twice so far. I don't know how my mom does it... I want to be a nurse or work with computers.

I have never seen my case manager, but she talked to me on the phone. She told me that I needed to get my GED so I wouldn't get sanctioned. They gave me two days notice. I took the test on Friday, turned it in on Monday and failed by one point. I got sanctioned.

They [case workers] try to help you out, but the sanctions make it real hard. I would really like to get a car to go to school and work, to make life a little easier, but it's hard. I got one bonus, which was good, but the sanctions really hurt.

Need for Increased Social Support—System wide

There are a variety of adults and programs that touched the lives of the adolescent mothers in this study, but they are missing opportunities for intervention. Each professional that interacts with these mothers, whether it be a Sister Friend, teen outreach worker, a Cal Learn case manager, teacher, counselor, physician, clergy, etc., is a potential source of social support. For the most part, these mothers reported boyfriends, family members and friends as their sources of support. Only four of the 17 mothers in the Sister Friend group spontaneously mentioned their Sister Friend as an important source of support. Two of the 37 mothers in this study spontaneously mentioned their Cal Learn case manager, one mentioned her school counselor, another mentioned her priest, and another mentioned her child care provider.

Need for comprehensive preventative health care

Although infants of adolescent mothers in the Sister Friend group had a significantly higher percentage of timely and complete immunizations than those in the Cal Learn-only group, rates in both groups were low (66.94% vs 41.95% respectively). These rates are alarming because they are basic indicators of infant and maternal health and fall short of the nation's Healthy People 2000 goals of having at least 90% of all two-year olds fully immunized by the year 2000 (US Public Health Service, 1990). With programs such as Medi-Cal and Healthy Families[16] most children should be able to receive comprehensive preventative health services. All of the mothers in this study received Medi-Cal, but tended to access the health care system only in cases of emergencies. This suggests that providing health coverage is only one in a series of steps to ensure that low-income families receive

preventative health care services. Substantial barriers remain and must be addressed to support the healthy development of children. Some of these barriers include: logistical problems (such as transportation, time and cost), psychosocial barriers that reflect a history of frustrating experiences with the health care system, ignorance about the benefits of preventative health care, and poor communication between the medical community and families (Acredolo, Berman & Phillips, 1994).

Need for early developmental assessments

Although most of the infants in this study fell within their normal age range for development, in some cases, there was a need for a more detailed developmental assessment. The Revised Denver Developmental Screening Test (RDDST) is a useful developmental screening tool and as a general rule, if the assessor detects three or more delays, the infant should be referred for further evaluation. Although one case manager conducted developmental assessments on a regular basis, this information was missing from Cal Learn files on the vast majority of these infants. Mothers in this study were interested in their child's development and wanted to know how their child was doing. The RDDST can be a valuable tool to spark communication about their goals for their child's development and typical child development.

[16] The Healthy Families Program, which was passed in 1997, is a comprehensive and affordable health insurance program for uninsured children up to age 18 whose families household incomes fall below 200% of the federal poverty level and who are ineligible for no-cost Medi-Cal.

Need for Integrated Services for Both Adolescent Mothers and their Offspring

Child Development Services

Comprehensive, intensive early intervention can ameliorate some of the negative outcomes for children and adolescent mothers living in poverty. Head Start and Early Head Start (Hale, Seitz, & Zigler, 1990) programs are among the most noteworthy. None of the infants in this study had access to these programs. Some infants did receive child care services through teen parent centers, but the quality varied from primarily custodial in West Sacramento and developmentally focused at the Woodland Teen Parent Center. Overall, there has been little coordination between programs for children in poverty and those designed especially for children of adolescent parents (Chase-Lansdale, Brooks-Gunn & Paikoff, 1992). During this study, the 1996 Personal Responsibility and Work Opportunity Act (the welfare repeal legislation) was beginning to be implemented. It pushed a large number of women with infants into job training programs or the workforce. This placed extra demands on the supply of infant care. The Yolo County Department of Social Services reported that the majority of these women placed their infants in license exempt homes. This trend seems to be true for adolescent mothers. Often they are not informed about their child care choices. Quality child care may not be available and social services reimburses license exempt homes at a lower rate than licensed facilities. Built into this policy is a disincentive for social services to emphasize the benefits associated with licensed facilities.

This study provides additional evidence that child care does help adolescent mothers attend school. Child care costs, quality and availability were major concerns for these mothers. These concerns also provide further evidence that they care for their infants and

want them to be safe and healthy. The following are representative statements from mothers in this study:

> I want someone I trust, someone in my family, to take care of my baby. They keep pushing me to put her in a child care program. They say my aunt can't do it. I don't feel like they [Cal Learn workers] listen to me.
>
> I would rather work part-time and not get AFDC, but child care costs too much.
>
> Cal Learn does pay for child care and my bus pass. That helped me go to school.
>
> I don't want to go through Cal Learn, but child care costs too much. At my high school it costs $400 a month.
>
> They pay for child care, but I don't want to have my baby cared for in a child care program. You hear too much bad stuff about abuse and things. I would rather my mom take care of her, but Cal Learn won't pay for that.
>
> Either my mom or my dad takes care of the baby. My dad has time, but it's hard for him because he's disabled. Child care programs are dangerous nowadays. I look at all of those babies they show on t.v., I barely trust my relatives to take care of my baby let alone strangers. I don't trust the background checks for child care workers.

Call to Action

Rather than a need for additional programs for adolescent mothers and/or their infants, there is a strong and urgent need to integrate, improve the functioning of, and monitor existing services. The case study in appendix C demonstrates this need. Yolo County already has a variety of services and programs to support adolescent mothers (see Appendix D). However largely stemming from divergent state and federal social policies, these services lack coordination. There are a number of additional reasons for fragmented services including: an ideological emphasis on family privacy; crisis-oriented public policy; an emphasis on means tested programs which leads to segregation of children by income; and sporadic government intervention in the service of larger goals (Burt, Resnick &

Novick, 1998). For example, among the programs under the California State Department of Social Services, there are Cal Learn, Medi-Cal, and Food Stamps programs. The California State Department of Health Services is responsible for the Adolescent Family Life Program, Healthy Families, the Child Health and Disability Prevention Program and WIC. The California State Department of Education administers the Teen Parent Programs, Continuation High Schools, Healthy Start, and the Child Development Centers. Each of these programs has different eligibility requirements, offers different types of services and is administered by different local agencies (see Appendix E). In Yolo County's private nonprofit sector, there are programs such as Sister Friend, Creating Health Environments for Families (CHEC), Food Banks, and Thrift shops.

This call to action comes at a time when there is an increasing shift in the planning, funding and monitoring of services from the federal level to the state level and from the state level to the local counties. The most dramatic example of this shift is the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-93). A more recent example is the 1988 passage of the California Children and Families First Act (Proposition 10). In both cases, counties are responsible for developing a service delivery plan and distributing funds. Yolo County has already engaged in a process for developing an integrated service delivery plan for P.L. 104-93. In addition to existing services, Yolo County also has a large number of talented and willing volunteers who are committed to improving public policies and programs for youth and families. Out of concern for meeting the needs of low-income families under new the new welfare law, members of the Yolo County Advisory Boards requested the Board of Supervisors to appoint a citizen's Welfare Reform Advisory Board. The Board of Supervisors appointed a 16 member volunteer group of community members who, in consultation with county staff, were charged with

the development of policy and plans for implementing the 1996 welfare legislation. One of the recommendations unanimously adopted by the Board of Supervisors was the plan for a "One-Stop-Shop" for services. Under this plan, a client could walk through any service door in the county and be connected with any other public or private entity that would be able to help meet the clients need.

Plan of Action

Although the Board of Supervisors terminated Welfare Reform Advisory Board's activities upon passage of the county plan, the county will soon have a new board called the Children and Families First Commission. Proposition 10 requires each County Board of Supervisors to appoint 5 to 9 members their Children and Families First Commission. This commission is responsible for the broad task of implementing the county's program to improve child development. It is recommended that the Board of Supervisors charge this commission with the specific task of integrating, improving the functioning of, and monitoring existing services for adolescent mothers and their children. The concept of a "One Stop Shop" for services could readily be applied to the service delivery system for adolescent mothers and their infants.

This effort will require community-wide collaboration. Collaboration is defined as: "the establishment of common goals in order to address problems that lie beyond the exclusive purview of any one agency, but concern all agencies...Partners typically agree to pool resources (either funds, personnel or both); jointly plan, implement and evaluate new services and procedures; and delegate individual responsibility for the outcomes of their joint efforts" (Burt et al., 1998). The Board of Supervisors and/or Commission would be advised to hold joint meetings with each of the County Department Heads (Social

Services, Public Health, Juvenile Justice, Education); non profit agencies who are able to serve adolescent mothers and/or their infants; and interested members from existing county advisory boards. The plan should identify existing funding sources and services, prioritize funding additional areas where the county can secure federal and state matching dollars and identify gaps in services that can be funded with Proposition 10 funds. The plan should include a service evaluation component so there is a system of accountability to ensure that services are actually reaching the adolescent mothers and their infants as intended. The Board of Supervisors should review and adopt such a plan and hold government agencies accountable for its implementation.

This study has shown that the Sister Friend Program made a small but tangible improvement in the lives of low-income adolescent mothers and their children. However, the Sister Friend Program is only one small piece of a larger service delivery system in Yolo County. Intervention efforts for adolescent mothers and their infants need to be addressed in a larger community context that is actively engaged in systematic efforts to promote the healthy development of *all* youth. The current system is far from perfect and developing an integrated service delivery system is fraught with challenges. However, the ingredients for a better service delivery system exist – we have both the programs and the people and now the beginnings of a plan.

APPENDIX A – Assessment Tools

Norbeck Social Support Questionnaire (NSSQ)

Number_____

Date

_____

Personal Network

First Name or Initials	Relationship
1._____	_____
2._____	_____
.	
.	
.	
20._____	_____

Questions for Rating Network Members on the NSSQ

For each person you listed, please answer the following questions by writing in the number that applies.

1 = not at all 2 = a little 3 = moderately 4 = quite a bit 5 = a great deal

1. How much does this person make you feel liked or loved?
2. How much does this person make you feel respected or admired?
3. How much can you confide in this person
4. How much does this person agree with or support your actions or thoughts?
5. If you needed to borrow $10, a ride to the doctor or some other immediate help, how much could this person usually help?
6. If you confined to bed for several weeks, how much could you count on this person to help you?
7. How frequently do you usually have contacts with this person (phone calls, visits, or letters)?
8. How frequently do you usually have contact with this person?
9. During the past year have you lost any important relationships due to moving, death or some other reason?

9a. If yes, check the category(s) of persons who are no longer available to you.

9b. How much support did this person (or persons) provide you during the past six months?

Infant/Toddler HOME

Place a plus (+) or minus (-) in the box alongside each item if the behavior is observed during the visit or if the parent reports that the conditions or events are characteristic of the home environment. Enter the subtotal and the total on the front side of the Record Sheet.

I. RESPONSIVITY		24. Child has a special place for toys and treasures.	
1. Parent spontaneously vocalizes to child at least at least twice.		25. Child's play environment is safe.	
2. Parent responds verbally to child's vocalizations or verbalizations.		**IV. LEARNING MATERIALS**	
3. Parent tells child name of object or person during visit.		26. Muscle activity toys or equipment.	
4. Parent's speech is distinct, clear and audible.		27. Push or pull toy.	
5. Parent initiates verbal interchanges with Visitor.		28. Stroller or walker, kiddie car, scooter, or tricycle.	
6. Parent converses freely and easily.		29. Parent provides toys for child to play with during visit.	
7. Parent permits child to engage in "messy" play.		30. Cuddly toy or role-playing toys.	
8. Parent spontaneously praises child at least twice.		31. Learning facilitators—mobile, table and chair, high chair, play pen.	
9. Parent's voice conveys positive feelings toward child.		32. Simple eye-hand coordination toys.	
10. Parent caresses or kisses child at least once.		33. Complex eye-hand coordination toys.	
11. Parent responds positively to praise of child offered by Visitor.		34. Toys for literature and music.	
II. ACCEPTANCE		**V. INVOLVEMENT**	
12. Parent does not shout at child.		35. Parent keeps child in visual range, looks at often.	
13. Parent does not express overt annoyance with or hostility to child.		36. Parent talks to child while doing household work.	
14. Parent neither slaps nor spanks child during visit.		37. Parent consciously encourages developmental advance.	
15. No more than 1 instance of physical punishment during past week.		38. Parent invests maturing toys with value via personal attention.	
16. Parent does not scold or criticize child during visit.		39. Parent structures child's play periods.	
17. Parent does not interfere with or restrict child 3 times during visit.		40. Parent provides toys that challenge child to develop new skills.	
18. At least 10 books are present and visible.		**VI. VARIETY**	
19. Family has a pet.		41. Father provides some care daily.	
III. ORGANIZATION		42. Parent reads stories to child at least 3 times weekly.	
20. Child care, if used, is provided by one of three regular substitutes.		43. Child eats at least one meal a day with mother and father.	
21. Child is taken to grocery store at least once a week.		44. Family visits relatives or receives visits once a month or so.	
22. Child gets out of house at least 4 times a week.		45. Child has 3 or more books of his/her own.	
23. Child is taken regularly to doctor's office or clinic.			

TOTALS: I _____ II _____ III _____ IV _____ V _____ VI _____ TOTAL _____

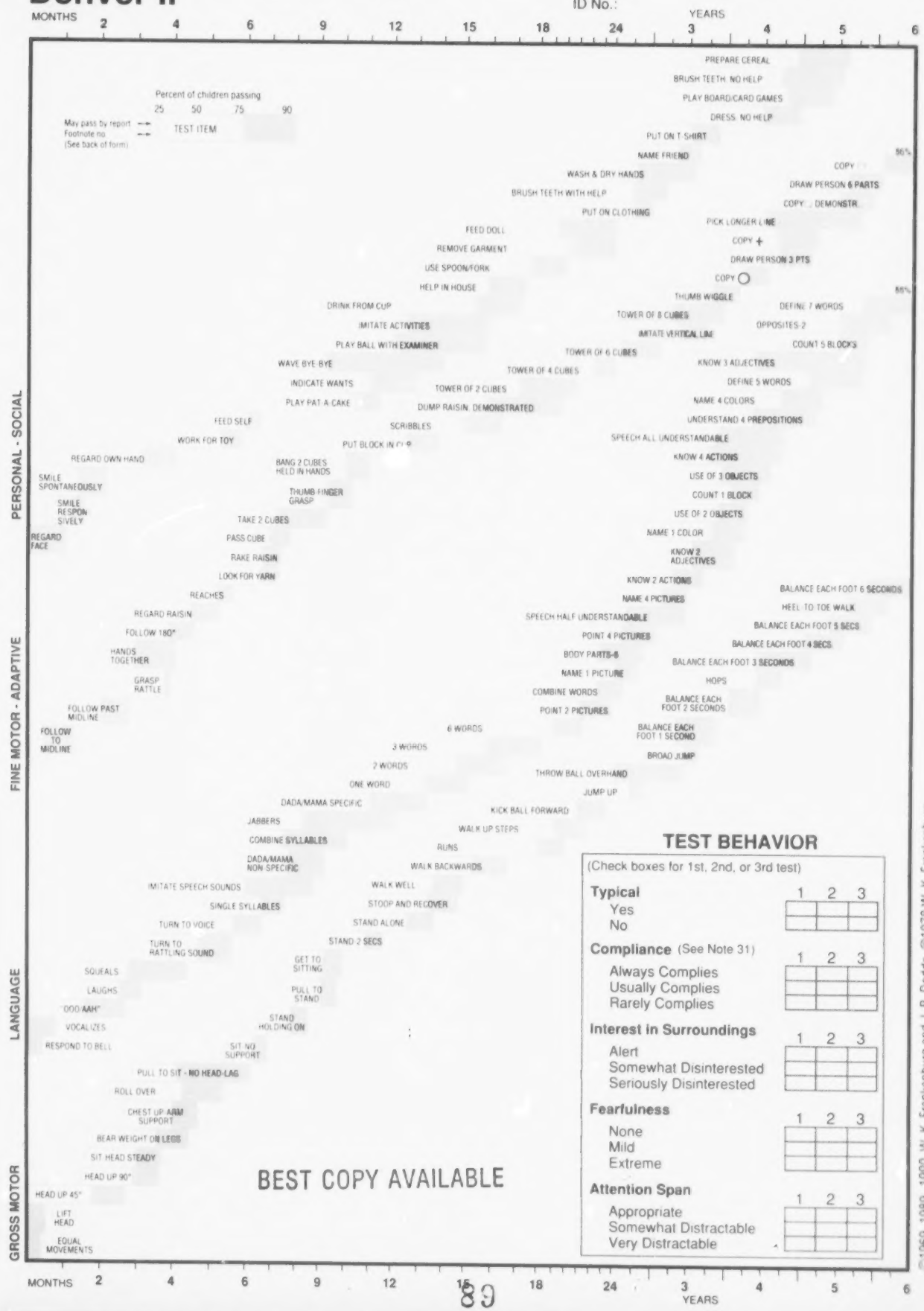
BEST COPY AVAILABLE

DA FORM 5694, MAY 1988

Denver II

Examiner:
Date:

Name:
Birthdate:
ID No.:



TEST BEHAVIOR

(Check boxes for 1st, 2nd, or 3rd test)

	1	2	3
Typical			
Yes			
No			
Compliance (See Note 31)			
Always Complies			
Usually Complies			
Rarely Complies			
Interest in Surroundings			
Alert			
Somewhat Disinterested			
Seriously Disinterested			
Fearfulness			
None			
Mild			
Extreme			
Attention Span			
Appropriate			
Somewhat Distractable			
Very Distractable			

©1969, 1989, 1990 W. K. Frankenburg and J. B. Dodds ©1978 W. K. Frankenburg

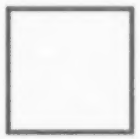
DIRECTIONS FOR ADMINISTRATION

1. Try to get child to smile by smiling, talking or waving. Do not touch him/her.
2. Child must stare at hand several seconds.
3. Parent may help guide toothbrush and put toothpaste on brush.
4. Child does not have to be able to tie shoes or button/zip in the back.
5. Move yarn slowly in an arc from one side to the other, about 8" above child's face.
6. Pass if child grasps rattle when it is touched to the backs or tips of fingers.
7. Pass if child tries to see where yarn went. Yarn should be dropped quickly from sight from tester's hand without arm movement.
8. Child must transfer cube from hand to hand without help of body, mouth, or table.
9. Pass if child picks up raisin with any part of thumb and finger.
10. Line can vary only 30 degrees or less from tester's line.
11. Make a fist with thumb pointing upward and wiggle only the thumb. Pass if child imitates and does not move any fingers other than the thumb.

12. Pass any enclosed form. Fail continuous round motions.

13. Which line is longer? (Not bigger.) Turn paper upside down and repeat. (pass 3 of 3 or 5 of 6)

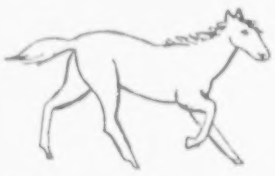
14. Pass any lines crossing near midpoint.

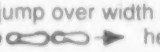


15. Have child copy first. If failed, demonstrate.

When giving items 12, 14, and 15, do not name the forms. Do not demonstrate 12 and 14.

16. When scoring, each pair (2 arms, 2 legs, etc.) counts as one part.
17. Place one cube in cup and shake gently near child's ear, but out of sight. Repeat for other ear.
18. Point to picture and have child name it. (No credit is given for sounds only.)
    If less than 4 pictures are named correctly, have child point to picture as each is named by tester.



19. Using doll, tell child: Show me the nose, eyes, ears, mouth, hands, feet, tummy, hair. Pass 6 of 8.
20. Using pictures, ask child: Which one flies?... says meow?... talks?... barks?... gallops? Pass 2 of 5, 4 of 5.
21. Ask child: What do you do when you are cold?... tired?... hungry? Pass 2 of 3, 3 of 3.
22. Ask child: What do you do with a cup? What is a chair used for? What is a pencil used for?
    Action words must be included in answers.
23. Pass if child correctly places and says how many blocks are on paper. (1, 5).
24. Tell child: Put block **on** table; **under** table; **in front of** me, **behind** me. Pass 4 of 4.
    (Do not help child by pointing, moving head or eyes.)
25. Ask child: What is a ball?... lake?... desk?... house?... banana?... curtain?... fence?... ceiling? Pass if defined in terms of use, shape, what it is made of, or general category (such as banana is fruit, not just yellow). Pass 5 of 8, 7 of 8.
26. Ask child: If a horse is big, a mouse is __? If fire is hot, ice is __? If the sun shines during the day, the moon shines during the __? Pass 2 of 3.
27. Child may use wall or rail only, not person. May not crawl.
28. Child must throw ball overhand 3 feet to within arm's reach of tester.
29. Child must perform standing broad jump over width of test sheet (8 1/2 inches).
30. Tell child to walk forward,  heel within 1 inch of toe. Tester may demonstrate.
    Child must walk 4 consecutive steps.
31. In the second year, half of normal children are non-compliant.

OBSERVATIONS:

Catalog #2115

Sister Friend Interview Guides

Interview guide for Teen Mothers

Thank you for taking some time to talk with me. I just want to know a little bit about what your experience with the Sister Friend program has been like and what it's been like having a mentor. Everything that you say will be kept confidential.

To start out, how did you get hooked up with the Sister Friend program?

What is your mentor like?

What did you think your mentor would be like, what did you think you would be doing with that person?

How often do you meet?

What kinds of things to you do together?

Who decides what you will do when you meet?

What do you talk about when you get together?

Do you feel like you have anything in common with her?

Thinking about the things that you did, can you remember a time that you particularly enjoyed or stands out in your mind?

Was there ever a time when she said something to encourage you, something that made you feel more confident, made you feel good about yourself?

What do you think about that?

Is there a time that you didn't like, when things just didn't seem to work out?

Why didn't that work out well?

Has your mentor ever tried to give you advice?

What do you think about the advice that she gave you?

Has your mentor tried to help you at all with a problem? Describe what happened?

What qualities do you like most about your mentor?

Have you experienced any minor difficulties or problems with your mentor?

Is there anything else that you would like to add that I haven't asked you about?

Interview Guide for Sister Friend Volunteer

Thank you for taking some time to talk with me. I just want to know a little bit about what your experience with the Sister Friend program has been like and what it's been like having a mentor. Everything that you say will be kept confidential.

To start out, how did you hear about the Sister Friend program?

Why did you want to become a mentor for a teenage parent?

Did you participate in any orientation or trainings? What were they like?

How do you feel they prepared you for being a mentor?

Is there anything that you would change about the orientation or training?

What did you think she would be like and what did you think that you would be doing with her?

Tell me about your little sister?

How often do you meet?

What kinds of things to you do together?

Who decides what you will do when you meet?

Do you feel like you have anything in common with her?

What do you talk about when you get together?

Thinking about the things that you did, can you remember a time that you particularly enjoyed or that stands out in your mind?

Is there a time that you didn't like, when things just didn't seem to work out?

Why didn't that work out well?

What have you liked most about being a sister friend?

Have you experienced any minor difficulties or problems with your little sister?

What have you learned from your experiences so far?

Is there anything else that you would like to add that I haven't asked you about?

APPENDIX B

Infant and Toddler Immunization Schedule

Age of Child	Immunization Needed
2 Months	Diphtheria, Tetanus, Pertussis (DTP), Heamophilus Influenzae type B, Hepatitis B, Polio
4 Months	Polio, DTP, Heamophilus Influenzae type B, Hepatitis B
6 Months	Polio, DTP, Heamophilus Influenzae type B
12-15 Months	Measles, Mumps, Rubella, Heamophilus Influenzae type B, Hepatitis B
15-18 Months	DTP

APPENDIX C -HOME inter-observer reliability coefficients

HOME Subscale	Pre-Test Reliability Coefficients N=30	Post-Test Reliability Coefficients N=17
I. Responsivity	.94	.95
II. Acceptance	.90	.73
III. Organization	.87	.96
IV. Learning Materials	.90	.96
V. Involvement	.83	.84
VI. Variety	.96	1.0
TOTAL	.91	.95

APPENDIX D – Examples of existing services for adolescent mothers and their infants in Yolo County

Public/government programs (partial list)

Programs	Local Department	Description of Services	Eligibility Criteria
Cal Learn	Yolo County Department of Social Services	Financial incentives and sanctions for school attendance and grades Child Care Services; Transportation vouchers; Case Management by social service workers	Pregnant and parenting teens, 19 years old or younger, receiving Cal Works, living with their child(ren), do not have a high school diploma or equivalent; Mandatory Program
Food Stamps	Yolo County Department of Social Services		Low-Income
Adolescent Family Life Program (AFLP)	Yolo County Department of Public Health	Case Management by public health nurses	Any pregnant and parenting teen mothers age 17 or younger, parenting fathers 21 years or younger; Voluntary Program
WIC	Yolo County Department of Public Health	Vouchers for healthy foods Nutritional education & counseling Breastfeeding support Referrals to other agencies	Pregnant or breastfeeding women (if not breastfeeding, up to 6 months after birth of the baby) & children under age 5 who are 200% of the poverty line.
CHDP	Yolo County Department of Public Health	Health & Development Screening Physical examination, Nutritional assessment, Immunizations, Hearing, vision and lead testing Dental services for children 3-21	Medi-Cal beneficiaries between the ages of birth to age 21 Non-Medical eligible children birth to age 19 from low-income families
MediCal	Yolo County Department of Social Services		Low-income
Healthy Families			Children up to age 18 whose families incomes fall below 200% of Federal Poverty level and are ineligible for Medi-Cal

Public/government programs (partial list continued)

Teen Parent Centers: Woodland, W. Sac., Winters, Davis	Yolo County Superintendent of Schools	Personal Development Plan Classes on pregnancy, childbirth and parenting; Cooperative child care labs Referrals to other agencies	Pregnant or parenting, under age 18, have not finished high school. Enrollment is required *prior* to the birth of the baby
Head Start Early Start	U.S. Department of Health & Human Services	Infant and preschool services	Low-income & 10% of slots are for children with disabilities regardless of income
Child Development Centers	Yolo County Superintendent of Schools	Infant and preschool services	Low-income
Healthy Start (AB 1741)	Yolo County Superintendent of Schools	Began in 1991 to encourage local integration of services in California.	Local agencies serving low-income or limited English proficiency populations
Continuation High Schools	Yolo County Superintendent of Schools		
Recreation	Yolo County Department of Parks & Recreation		No income eligibility required to participate.

Private, Non-Profit Agencies (partial list)

Program	Description of Services	Target Population
Sister Friend	One-on-one mentoring, community parenting classes	Pregnant and parenting teens Women recovering from substance abuse
Food Bank	Hot meals and groceries	Low-income (need based)
Salvation Army All things Right & Relevant	Thrift shops, discount and/or free clothing, housewares, etc.	Families in need
CHEC—Sutter Health	Home visits for follow-up care for three years; links families to other resources	At-risk families identified via hospital based screening
• Woodland Wayfare Center Christian Mission • W Sacramento Broderick Christian Center	Temporary housing for up to six months, weekly grocery distribution, parenting and life skills classes, alcohol and drug education, one-on-one counseling; works with Salvation Army to provide financial vouchers	Over 18 or under 18 if legally emancipated Priority based on need

REFERENCES

Acredolo, C.; Berman, S.; Phillips, K. (1994). *Immunization tardiness and neglect: An evaluation study of the causes for the high incidence of under-immunization among infants and preschool children in Sacramento County.* Sacramento, Sutter Health.

Ainsworth, M., Blehar, M., Waters, E. & Wall, S. (1978). Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Erlbaum.

Berk, R. A. & Rossi, P. (1990). *Thinking about program evaluation.* Newbury Park, CA: Sage Publications.

Biringen, Z. & Robinson, J. (1991). Emotional availability in mother-child interactions: a reconceptualization for research. *American Orthopsychiatry, 61* (2) 258-271.

Boehm, A.(1985). Review of Home Observation for Measurement of the Environment. In J. V. Mitchel (Ed.) *The Ninth Mental Measurement Yearbook.* Nebraska: Buros Institute of Mental Measurments of the University of Nebraska.

Bowlby, J. (1982). *Attachment.* 2nd ed. Basic Books.

Bradley, R. & Caldwell, B. (1968). *Home observation of measurement of the environment.* Little Rock: University of Arkansas.

Bradley, R. & Caldwell, B. (1977). Home Observation for Measurement of the Environment: A validation study of screening efficiency. *American Journal of Mental Deficiency, 81*(5) 417-420.

Brooks-Gunn, J. & Furstenberg, F. (1986). The children of adolescent mothers: Physical academic and psychological outcomes. *Developmental Review, 6,* 224-251.

Burt, M.; Resnick, G. & Novick, E. (1998). *Building Supportive Communities for At-Risk Adolescents: It takes more than services.* Washington D.C. , APA.

California Family Impact Seminar (CFIS). (1996). Teenage pregnancy in California: Effective prevention strategies. Sacramento, CA: CFIS, CA State Library Foundation.

California State Department of Health Services (CSDHS). (1996). *Birth Records.* Sacramento: State of California.

California State Department of Health Services (CSDHS). (1996). *Needs assessment and plan for the maternal and child health year 2000 objectives.* Sacramento: State of California.

Camp, B. W. (1996). Adolescent mothers and their children. *Journal of developmental and behavioral pediatrics, 17* (3), 162-169.

Carlson, D. B., LaBara, R. C., Sclafani, J. D. & Bowers, C. A. (1986). Cognitive and motor development in infants of adolescent mothers: A longitudinal analysis. *International Journal of Behavioral Development, 9* (1), 1-13.

Carlton, T. O. & Poole, D. L. (1990). Trends in Maternal and Child health care: Implications for research and issues for social work practice. *Social Work in Health Care, 15,* 1 p45-62.

Chase-Lansdale, P.L., Brooks-Gunn, J. & Paikoff, R. (1992). Research and programs for adolescent mothers: Missing links and future promises. *American Behavioral Scientist, 35* (3), 290-312.

Children's Defense Fund (CDF). (1998). *The state of America's children.* Washington, DC: Children's Defense Fund.

Diamond, K. E. (1990). Effectiveness of the revised Denver Developmental Screening Test in identifying children at risk for learning problems. *Journal of Educational Research, 83* (3), 152- 157.

Dubin, M. (1997, June 12). Seasoned mentors. *The Philadelphia Inquirer,* p1.

Flaxman, E. & Ascher, C. (1992). *Mentoring in Action: the efforts of programs in New York City.* New York: Institute for Urban and Minority Education, Columbia University.

Flaxman, E. & Ascher, C., & Harrington, C. (1988). *Youth mentoring: Programs and practices.* Urban Diversity Series, No. 97. New York: ERIC Clearinghouse on urban education, Teachers College, Columbia University.

Frankenburg, W. K. & Dodds, J. (1990). *Denver II.* Denver: Denver Developmental Materials, Inc.

Frankenburg, W. K., Camp, B. W. & Van Natta, P. A. (1971). Validity of the Denver Developmental Screening Test. *Child Development,* 42, 475-485.

Frankenburg, W. K., Dodds, J., Archer, P., Bresnick, B., Maschka, P, Edelman, N. & Shapiro, H. (1992). *Denver II.* Denver: Denver Developmental Materials, Inc.

Frankenburg, W. K., Dodds, J., Archer, P., Shapiro, H. & Bresnick, B. (1992). The Denver II: A major revision and restandardization of the Denver Developmental Screening Test. *Pediatrics, 89* (1), 91-97.

Fry, P. S. (1985). Relations between teenagers' age, knowledge, expectations and maternal behavior. *British Journal of Developmental Psychology, 3* (1), 47-55.

Furstenberg, F. F, Brooks-Gunn, J & Chase-Lansdale, L. (1989). Teenage pregnancy and childbearing. Special Issue: Children and their development: knowledge base, research agenda and social policy application. *American Psychologist, 44* (2), 313-320.

Furstenberg, F., Brooks-Gunn, J., & Morgan, S. (1987). *Adolescent mothers in later life.* New York: Cambridge University Press.

Geronimous, A. T. (1986). The effects of race, residence and prenatal care on the relationship of maternal age to neonatal mortality. *American Journal of Public Health. 76,* 1416-21.

Gottfried, A. W. & Gottfried, A. E. (1986). Home environment and children's development from infancy through the school entry years: Results of contemporary longitudinal investigations in North America. *Children's Environment Quarterly, 3* (1), 3-9.

Gottfriend A. W. (1984). *Home environment and early cognitive development.* Orlando: Academic Press.

Granger, G. R. (1982).Young adolescents' knowledge of child development. *Dissertation abstracts International 42* (12-A: 5026).

Granger, R. (1994). New Chance. Papers presented at: *Seminar Series on Persistent Poverty: Programs for Unwed Teen Mothers.* American Enterprise Institute.

Hack, B., Klein, N. & Taylor, G. (1995). Long-term developmental outcomes of low birth weight infants. *The Future of Children, 5* (1), 176-196.

Hale, B., Seitz, V.& Zigler, E. (1990). Health services in Head Start: A forgotten formula. *Journal of Applied Developmental Psychology, 1*(4), 447-458.

Harper D. C. & Wacker, D. P. (1983). The efficiency of the Denver Developmental Screening Test with rural disadvantaged preschool children. *Journal of Pediatric Psychology, 8* (3), 273-283.

Harris, I. B. (1996). *Children in jeopardy: Can we break the cycle of poverty?* New Haven: Yale University Press.

Hetchman, L. (1989). Teenage mothers and their children: Risks and problems: A review. *Canadian Journal of Psychiatry, 34* (6), 569-575.

Klaw, E. & Rhodes, J. (1995). Mentor relationships and the career development of pregnant and parenting African-American teenagers. *Psychology of women quarterly, 19*, 551-562.

Klein, L. (1974). Early teenage pregnancy, contraception and repeat pregnancy. *American Journal of Obstetrics and Gynecology, 120*, 249-256.

Lefkowitz, B. (1986). *Tough change: Growing up on your own in America.* New York: Free Press.

Lipsey, M. W. (1993). Theory as method: Small theories of treatments. In L. B. Sechrest & A. G. Scott (eds.). *Understanding causes and generalizing about them.* New Directions for Evaluations No. 57. San Francisco: Jossey Bass. (p. 5-38).

Luster, T., & Dubow, E. (1990). Predictors of the quality of the home environment that adolescent mothers provide for their school age children. *Journal of Youth and Adolescence, 19* (5), 475-494.

Maynard, R. (1994). The Teenage Parent Demonstration. Papers presented at: *Seminar Series on Persistent Poverty: Programs for Unwed Teen Mothers.* American Enterprise Institute.

Mecca, A. M. (1995) *Meta-analysis of prevention policies leading to mentoring programs.* Department of alcohol and drug programs, State of California.

Miller, C. L., Miceli, P. J., Whitman, T. L. & Borkowski, J. G. (1996). Cognitive readiness to parent and intellectual-emotional development in children of adolescent mothers. *Developmental Psychology, 32* (3), 533-541.

Moriarity, A. (1978). Review of the Denver Developmental Screening Test. In Oscar Buros (Ed.) *Mental Measurement Yearbook.* Highland Park, New Jersey: Gryphon Press.

National Center For Health Statistics (NCHS). (September, 1997). *Monthly Vital Statistics Report., 46* (1). Washington D.C.: NCHS.

Norbeck, J. S., Lindsey, A. M., Carrieri, V. L. (1981). The development of an instrument to measure social support. *Nursing Research, 30* (5), 264-269.

Osofsky, J., Hann, D. & Peebles, C. (1993). Adolescent parenthood: Risks and opportunities for mothers and infants. In Charles Zenha (ed.). *Handbook of infant mental health.* (pp. 106- 119). New York & London: Guilliford Press.

Osofsky, J., Osofsky, H., & Diamond, M. (1988). The transition to parenthood: special tasks and risk factors for adolescent mothers. In G. Suci & S. Robsertons (eds.). *Human Development: Future directions in infant development research* (pp. 25-39). New York: Springer-Verlag.

Phillips-Jones (1983). Establishing a formalized mentoring program. *Training and Development Journal, 37* (2), 40-42.

Polit, D., Quint, J., Riccio, J. (1988). *The challenge of serving teenage mothers: Lessons from Project Redirection.* New York: Manpower Demonstration Research Corps.

Powell, A. (1997). Academic tutoring and mentoring: A literature review. Sacramento, CA: CFIS, CA State Library Foundation.

Quint, J., Polit, D., Bos, H. & Cave, G. (1994). *New Chance: Interim findings on a comprehensive program for disadvantaged young mothers and their children.* New York: Manpower Demonstration Research Corps.

Resnick, M., Bearman, P., Blum, R., Bauman, K., Harris, K., Jones, J., Tabor, J., Beuhring, T., Sieving, R., Shew, M., Ireland, M., Bearinger, L. & Urdy, R. (1997). Protecting adolescents from harm: Findings from the longitudinal study on adolescent health. *The Journal of the American Medical Association, 278*, 823-832.

Rhodes, J., Contereas, J. & Mangelsdorf, S. (1994). Natural mentor relationships among Latina adolescent mothers: Pyschological adjustment, moderating processes and the role of early prenatal acceptance. *American Journal of Community Psychology, 22* (2), 221-227.

Rhodes, J. E. & Davis, A. B. (1996) Supportive ties between nonparent adults and urban adolescent girls. In Bonnie Leadbeater & Niobe Way (Eds.) *Urban girls: Resisting stereotypes, creating identities.* New York: New York University Press.

Rhodes, J., Ebert, L. & Fischer, K. (1992). Natural mentors: An overlooked resource in the social networks of young, African American mothers. *American Journal of Community Psychology, 20* (4), 445-461.

Rhodes, J., Gingiss, P. & Smith, P. (1994). Risk and protective factors for alcohol use among pregnant African-American, Hispanic, and White adolescents: The influence of peers, sexual partners, family members and mentors. *Addictive Behaviors, 19* (5), 555-564.

Sipe, C. (1996). *Mentoring: A synthesis of P/PV's research: 1988-1995.* Philadelphia, PA: Public/Private Ventures.

Sipe, C. & Ma, F. (1998). *Support for youth: A profile of three communities.* Philadelphia, PA: Public/Private Ventures.

Spitz, R. (1965). *The first year of life.* New York: International Universities Press.

Sroufe, L. (1982). Infant-caregiver attachment and patterns of adaptation in pre-school: the roots of maladaptation and competence. In M. Perlmutter (Ed.) *Minnesota symposium in child psychology,* Vol. 16. Minneapois: University of Minnesota Press.

Stoiber, K. C. & Houghton, T. G. (1993). The relationship of adolescent mothers' expectations, knowledge, and beliefs to their young children's coping behavior. *Infant Mental Health Journal., 14* (6), 61-79.

Styles, M. B. & Morrow, K. V. (1992). *Understanding how youth and elders form relationships: A study of four linking lifetimes programs.* Philadelphia: Public/Private Ventures.

Tierny, J. & Branch, A. (1992). *College students as mentors for at-risk youth: A study of six campus partners in learning programs.* Philadelphia, PA: Public/Private Ventures.

Tierny, J., Grossman, J., & Resch, N. (1995). *Making a difference: An impact study of big brothers big sisters.* Philadelphia: Public/Private Ventures.

US Public Health Service. (1990). *Healthy People 2000: National health promotion and disease prevention objectives.* Washington DC: US Government Printing Office.

Vukelich, C. & Kliman, D. S. (1985). Mature and teenage mothers' infant growth expectations and use of child development information sources. *Journal of Applied Family and Child Studies, 34* (2), 189-196.

Werner, E. E.; Randolph, S. M. & Masten, S. (March, 1996). Fostering resiliency in kids: Overcoming adversity. Proceedings of a Congressional Breakfast Seminar, sponsored by the Consortium of Social Science Associates. Washington D.C.

Werner, E. & Smith, R. (1992). *Overcoming the odds: High risk children from birth to adulthood.* Cornell: Cornell University Press.

Werner, E. (1978). Review of the Denver Developmental Screening Test. In Oscar Buros (Ed.) *Mental Measurement Yearbook.* Highland Park, New Jersey: Gryphon Press.

Wilson, P. (1997). Governor's 1997-1998 budget summary. Sacramento, California: State of California.